AMERICAN GAS ASSOCIATION MONTHLY



No. 8

Vol. III

August, 1921

"Let us be inflexible and fortune will at last turn in our favor"

-The Vicar of Wakefield



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FOR STATEMENTS AND OPINIONS CONTAINED IN PAPERS AND DISCUSSIONS APPEARING HEREIN, THE ASSOCIATION DOES NOT HOLD ITSELF RESPONSIBLE

AMERICAN GAS ASSOCIATION MONTHLY

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American Gas Association Monthly

Vol. III

AUGUST, 1921

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In Other Words

Not that Goldsmith's happy old vicar with his never-ending adversities has anything at all to do with the modern day gas industry—he hasn't; but the words that were ever on his lips, the words that expressed his philosophy represent a pretty fine thought for all of us.

Had the famous line found its way to our MONTHLY cover some twelve months ago it might have served as a battle cry. The gas industry was facing a crisis fraught with danger and bitterness, and demanding the utmost of its every member. It meant labor and money; it required even an infinite patience to combat the forces that had been accumulating to this very climax. The crisis has passed, probably for many the worst is over; but lulls are dangerous.

Strong men and eager have given to this industry the best that was in them. They are still working as they must ever be at the task they have shouldered, a task that should have been a part of this industry from the beginning, that should be a part of all Business from its beginning to its end. Year by year we will find the effort less, for we have suffered in these few months, decades of procrastination. We will find it less hard to keep the thing rolling, now that it has been started, and therein lies the timeliness of our text.

"Let us be inflexible." In the face of a dismal outlook, of misunderstanding, of bitter dissension, of vicious prejudices, "Let us be inflexible—and fortune will at last turn in our favor."

That is the way the brave old vicar looked at it. His son might be a dolt, his daughters suffer in their matrimonial hopes, his family at the point of extreme poverty, but there he stood, resolute, and undaunted, patient and kind in his vicissitudes and fortune did turn in his favor.

No matter the size of the wheel; it must soon or late get 'round to you and your problems. Our wheel is turning. That doesn't necessarily convey that you can't help it along. You can. Are you considering the winter—that it is apt to be long and bitter cold,—that as with other recent years there are coal difficulties? How is your coal problem? There is that to think about.

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On to Chicago!

IT is not too early to start the cry "On to Chicago!" in preparation for the third annual convention of the American Gas Association which will be held this year during the week of November 7th in the Congress and Auditorium Hotels.

The Manufacturers' Exhibition will open on Monday, November 7th, and continue throughout the week, and the principal business sessions of the convention will be held on November 9th, 10th and 1th. The Congress and Auditorium Hotels are joined by an underground passage and they are situated in the heart of the shopping and theatrical district of Chicago.

Present indications are that the attendance will hit a record figure and will be truly representative of the country at large. The convention program is already taking definite shape and the ad-

dresses, papers and reports to be presented will deal with up-to-the-minute questions facing the industry in a world period of economic readjustment. No effort will be spared to make this a "brass tacks" gathering of gas men. Authors and subjects of papers have been chosen with great care, with the idea in mind of making the convention the most constructive and helpful meeting of gas men ever held.

As for entertainment, anyone acquainted with Chicago's way of doing things in this line knows what is in store. There will be the usual dance, dinner and banquet functions and in addition a number of unique features and novelties which will make this year's gathering a memorable one.

There are only a few spaces remaining in the Manufacturers' Exhibition, which presages an interesting display and a large attendance of gas men interested in this field. Hotel reservations are now being made by those who are already anticipating the large number that will be present and it is urged that all who know at this time that they will attend lose no time in securing their accommodations.

A tentative program of the convention will be published in the next issue of this magazine.

COAL!

The production and shipment of bituminous coal continues to be very low. A general disinclination to buy and provide necessary supplies is causing considerable apprehension, and the Interstate Commerce Commission is suggesting the importance of securing as promptly as possible a reasonable reserve against the difficulties that will be present if later we get into a sustained period of so-called car shortage. The Association has so far been reluctant to make any definite recommendation on this subject until authoritative information as to the situation was available, but in view of the conditions reported to us and the growing concern that is being expressed, we believe that utility companies should give the matter the most careful consideration and not unduly defer the acquisition of reasonable coal stocks and reserves of coal.

The U. G. I. Employees' Association

JAMES B. DOUGLAS

THIS Association was organized on March 22nd, 1920, with a membership of 571, the purpose being to encourage thrift; to provide safe and convenient means by which the members may save and invest a portion of their wages or salaries, as well as the introduction of such other projects for the mutual benefit of the members as may be deemed desirable. The office of the Association is in The U. G. I. Building, Broad and Arch Streets, Philadelphia.

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Any person who has been in the employ of The United Gas Improvement Company or a company in which it is a shareholder in Pennsylvania, may become a member after having been so employed not less than one month.

When applying for membership the applicant authorizes the Treasurer of the employing company to deduct from his or her wages no less than \$1 per pay semi-monthly, and to pay same to the Treasurer of the Association for crediting to the account of the applicant if elected.

Any member may also apply through the Association for life insurance and disability insurance. On November 30th, 1920, a group life insurance contract was entered into with an insurance company whereby a member can secure \$1000 (only) life insurance, payable in lump sum or installments and convertible in case the member should leave the employing company. For this insurance the Association charges all applicants up to and including 39 years of age, 90c per month; from 40 up to

and including 49 years of age, \$1.25 per month. The premiums charged those between 49 and 70 years are gradually increased.

On February 8th, 1921, the Association entered into a group disability insurance contract with another insurance company, whereby for a base rate of 50c per month a member can secure benefits of \$1 a day covering any illness or quarantine and any off-duty or nonoccupational accident, excluding a waiting period covering the first seven days. Additional coverage up to \$6 a day may be secured at the said base rate for \$1 a day, but no member may purchase benefits exceeding 66% per cent, of his or her wages or salary. This insurance is also convertible should a member leave the employing company.

The three branches of the Association,—the Savings Fund, with 1992 members; the Life Insurance Fund, with 1347 members; and the Disability Insurance Fund, with 675 members, are all in successful operation. Five per cent, interest has been paid on deposits.

To secure the benefits of either the life insurance or the disability insurance an applicant must first be a member of the Association (Savings Fund), and the premium charges for the said insurance are deducted from the amount standing to each member's credit,

Withdrawals of savings are paid immediately when a member leaves the employing company, and while certain

(Continued on page 426)

Service-

An Antidote for Inadequate Rates

H. S. SCHUTT, Philadelphia, Pa.

To obtain adequate rates is one hing; to retain them, another. The public, accustomed to the great price advances that had occurred in all lines since the beginning of the war, was finally persuaded that utility companies were entitled to some measure of relief. But with the prices of other commodities now tending downward, will the public be content to see rates for gas, electricity and street car service remain at the present level?

We know that the rates for the services furnished by public utilities are not nearly so high even now, compared with pre-war times, as are the prices of general commodities, and we know also that, generally, they are barely sufficient to enable the companies to fulfill their present service obligations and to provide for the future needs of their communities. Public Service commissions today recognize these facts and so do the more enlightened newspapers. But let the public once get its composite mind set on a reduction in rates, and neither facts nor the judgment of commissions and enlightened newspapers will matter much. Upon the operating officials rests the responsibility for keeping the public from assuming that mental attitude,

I believe that we can accomplish this purpose more certainly and effectively by maintaining a high standard of service than by any other means. Of course, most operating officials think that the service furnished by their own companies is good, whether it is or not, and all believe it to be just a little better than it really is or at least better than their customers are willing to admit. So the question "What constitutes good service?" must be answered by each company for itself.

The important thing is to better the service, whether it be good, bad or indifferent. If possible, maintain 100 per cent. service; in the event that you have obtained rate relief let your customers see that the service has been improved thereby. And at all times emphasize the importance of service—in the newspapers, on bill stickers or by any other method that can be utilized.

The rigid economy of operation required by the war and post-war periods has, I believe, given many companies the habit of skimping unnecessarily in their plant expenditures. The natural effect upon the public of this policy is to cause gas service to be undervalued and frequently made the subject of bitter criticism. It is not necessary for one to be a psychologist to realize that a customer who believes that he is not getting the right sort of service will instinctively feel that he is paying too much for that service, no matter what the rate may be.

Most people are willing to pay a fair price for any commodity if they get what they want; at least the question of price does not assume the importance that it would otherwise. If a gas company's service is satisfactory the average customer will hesitate to jeopardize that service through seeking a reduction in rates until he has made up his mind that the existing rates are too high.

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In one middle western city, with whose gas situation I am familiar, an important hearing affecting rates was recently held by the Public Service Commission. The hearing had been advertised for several days; it was held in the municipal building and everyone knew that the city officials would oppose the company's petition. Yet not a citizen, other than those who were there on official business, was present. This attitude of indifference was due. I feel certain, to the fact that the company had long maintained an exceptionally high standard of service and that complaints were almost unheard of. One can readily imagine what an opportunity such a hearing would have afforded the anti-corporation cranks, of which all towns possess at least a few, to air their views, if they had been able to do any fault-finding,

I know of another city where similar service conditions prevail and where the gas rate has been advanced twice during recent years. Although there has been a great deal of unemployment there for the past six months, clerks in the bill office state that throughout that period they have not heard a complaint regarding rates from any of the twenty-odd thousand customers.

There are many similar illustrations

which I could present in proof of my contention that good service is usually an effective antidote for inadequate rates or, to express it more exactly, for unfriendly rate agitation on the part of the public.

On the other hand, if the pressure is insufficient, the gas poor in quality and meter complaints frequent, customers cannot be expected to place a high value upon their gas service. They reason that they have everything to gain and nothing to lose through a reduction in rates, since, according to their extreme view, the service cannot be worse. They have no incentive to pay a rate which they might be satisfied to pay if service conditions were to their liking.

When it comes to a rate hearing a company whose plant is in poor physical condition and whose service is inadequate or otherwise unsatisfactory usually has a hard time of it. If the plant and the service themselves testify to the indifference of the company regarding their upkeep, the Public Service Commission is hardly likely to treat them with greater consideration. Commissions can hardly be censured for taking the view that a utility company which has found it unnecessary to make proper plant expenditures in the past should not be permitted to do so now at the expense of their customers.

A company occupies a much stronger position before a commission and also in the eyes of the public if it can base its rate plea on the desire to maintain, rather than to establish, a high standard of service.

FOLKS DO SAY, THOUGH, THAT UNTIL THE MOTHER-IN-LAW CAME TO LIVE WITH THEM THEIR FAMILY LIFE WAS PERFECT

Convrient, 1931, New York Tribune Inc.



Courtesy of the N. Y. Tribune

The Executive's Responsibility in Accident Prevention

Report of the Accident Prevention Committee
CHARLES B. SCOTT, Chairman

ANY man in an official position hav-ing an intimate knowledge of his work, his organization and its methods would naturally resent any approach by an outside person who claimed to be expert in the details of such methods and was solicitous of an opportunity to inaugurate improvements. Every manager, superintendent or person in authority very naturally has confidence in those under him. If it were not so he would have chosen others and this confidence is really an essential to a good organization and to efficient operation. Every safety man should first of all recognize this fact with respect to his approach to such men and if he does so recognize it he will readily realize that the approach and the presentation of his claims must be most tactfully made, that his claims must be conservative and absolutely truthful and that his plans must be conservative and very carefully avoid any disturbing of the existing rules and regulations of the management.

Such practical men as managers, superintendents and those in authority, look at accident prevention more in the light of a business matter than in the subsequent humanitarian light and are not easily influenced by humanitarian benefits unless they are accompanied by elements of economy, greater efficiency and better industrial relations, so that the first approach should be made from the business point of view. It is often the case that those in authority are not

very thoroughly familiar with the existing penalties of accidents. They do not know how many accidents occur in their organization in the aggregate of a year or years. They are not familiar with the amount of money expended in compensation, medical services, absenteeism, etc., and often truthful statements of the number and cost of their own accidents may convince them of the necessity for prevention methods. These men may also be appealed to by a careful consideration and appreciation of the lost efficiency of their employees due to lack of systematic, careful, cooperative plans, which plans are the natural result of earnest accident prevention.

In no instance should a safety man assume a dictatorial attitude toward managers and supervisors but the approach should rather be made with the idea that the safety work is designed to help the particular manager or supervisor and that it will be reflected to his individual benefit as a manager or supervisor. This statement should be very strongly emphasized in the mind of the safety man,

It too often happens that the safety engineer does not give sufficient time and attention to contact with the manager and executive and that he devotes his energies to the subordinate employees without due recognition of their superiors. This fact accounts for many of the failures in safety work. No safety engineer can successfully

carry out plans with a group of employees independent of the support of the manager or superintendent over them, while on the other hand in cooperation with the manager or superintendent his success is almost without exception possible. Therefore there should be a closer and better feeling between the safety man and those in authority in the company, a more frequent contact, a better understanding of each other and of the methods of each other, a better understanding of the mutual interest, a better understanding of the benefits in administration which accrue from properly conducted accident prevention activities. Accident prevention in the industry would have better prestige and a more dignified place if there were a closer relation between those in charge of safety work and the executive and higher-ups of the company.

Extracts from Minutes of Meeting of the Accident Prevention Committee of The American Gas Association, held at the Piedmont Hotel, Atlanta, Ga., Thursday, April 21, 1921, 9:30 A.M.

MR. Deibert made the statement that his company had as many accidents after a safety department had been organized as before but that lost time had been reduced 39.5 per cent. over a one year period, showing the accidents to have been of a slighter nature. Mr. Congdon then made the suggestion that such statements as made by Mr. Deibert be published and in this way bring to the attention of executives the value obtained from safety work, not only from the humanitarian side but also from the point of view of the money saving.

The Chairman suggested sending a

letter to the Companies in the Association asking them for information regarding the safety organizations of member companies and explaining the value of such organizations. Mr. Burritt moved that such a letter be sent out over the signatures of the Chairman and the Secretary, which motion was seconded by Mr. Pulliam and carried by a vote of the Committee.

Suggestion was also made by the Chairman that a letter be sent to the American Gas Association stating that this Committee stands ready to cooperate and assist in reviewing the tentative safety code as gotten out by the Bureau of Standards at Washington, D. C.

A suggestion was made by Mr. Pulliam that the affiliated associations of the American Gas Association obtain, through their member companies, statistics on accidents, these statistics to embody:

First: Description of Accident.

Second: Means taken to prevent repetition.

Third: Result of the accident—physical and financial,

Fourth: Any recommendation for the general good.

It was then moved and carried that this Committee make the following recommendation to the American Gas Association that separate accident prevention committees be formed in each association affiliated with it; that the separate chairman of each accident committee of each affiliated association automatically become a member of this general committee; that each of the said affiliated committees adopt as its program for the first year a consideration of the following subjects:

- 1. Accident Statistics,
- 2. Publicity for accident prevention,
- 3. Accidents to the public,
- 4. Safety practices,
- 5. Rules,

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that the said reports be combined with the Annual Report of this general committee; that the rules so provided be considered in connection with the tentative rules of the Bureau of Standards.

The Chairman read a letter sent to Mr. Munroe regarding resuscitation in cases of gas poisoning. Plans were discussed by which it is hoped a commission will be appointed for the purpose of investigating methods of resuscitation to determine the most effective and efficient method in case of asphyxiation from gas.

The Chairman then stated that the Committee on Publicity would get together in the very near future in Chicago and arrange for monthly articles to be published in the American Gas Association Monthly.

The question of rules on safety was taken up and a general discussion followed. A number of corrections and additions were made and the Secretary was instructed to re-write the suggestions. These will be sent to the Committee for their consideration in the near future. Owing to the small number of suggestions relative to Safety to the Public, Safety Hints for the Installation of Appliances, and Safe Practices in Street Work, it was suggested that the Committee again gather suggestions for these departments.

Annual Meeting of Michigan Gas Association

THE annual meeting of the Michigan Gas Association will be held in Detroit on September 20th and 30th. The date this year is several weeks later than usual because of other conventions taking place in Detroit earlier in September. Headquarters will be at Hotel Statler and we have been assured of good care. However, it is not too early to make your reservation at once. Plans are being made for a very attractive business program which will be along different lines than those followed in the past. In place of a few long and exhaustive papers or addresses there will be a large number of five and ten minute talks on live topics connected with the various phases of the gas business. It is expected that some very lively discussions will develop and that there will be more than the usual interest in the business sessions. A special

effort is being made to make the program attractive to the man from the small city and to give him through the State Association meeting much information that has been developed by the activities of the National Association and has been tried out by the various companies.

There will also be some very interesting talks on the subjects of coal, oil and coke, as well as some important committee reports, and possibly an address by the Chairman of the Michigan Public Utilities Commission.

As for the entertainment features, that distinguished trio of organizers, promoters and impresarios, Bert Young, Harry Schall and Frank Fugate who covered themselves with so much glory at the 1910 Convention, will again be on the job, which leaves nothing further to be said on that subject.

Anonymous.

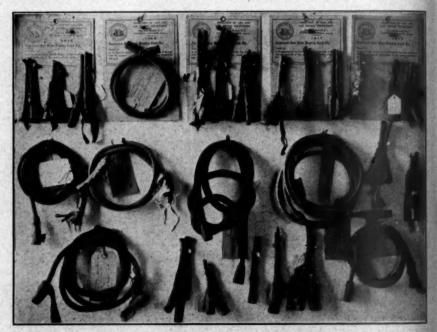
The Hazard of Unfit Tubing

E. FRANCISCO,

Supervisor of Gas Service, City of Newark, N. J.

HE most astounding situation that has come to the attention of this Bureau during its flexible gas tubing regulation and inspection work is the conditions under which we find gas tubing used in this City for the purpose of conveying gas to portable appliances. This condition is shown by the accompanying picture more vividly than any description that could be written. It might well be termed "A Picture of Horrors" because how many of us who know anything about gas tubing and its proper uses would ever believe without actually having it shown to us that the average gas tubing users will take the

chance of asphyxiation or other accident by patching an old piece of gas tubing and continuing its use in such a dangerous condition when for a small expenditure of money a new and safe piece could readily be purchased Ignorance of the attending dangers through this use of badly patched and defective gas tubing in a very large majority of cases certainly cannot be the reason, because practically every normal-minded person, except possibly the poor class of foreigners, knows the dangers of allowing unburned gas to escape into their rooms, therefore there is only one other reason for this condi-



Patched and leaky tubing condemned and removed from service by Bureau of Gas Inspection of Newark, N. J.

tion and that is the cost factor for the purchase of a new piece of hose. This might be a plausible reason in some rare instances but it certainly cannot be as general as this carelessness would indicate. The samples shown in this picture have been patched with tire tape, putty, rags and even bread dough. Asphyxiation was actually caused through the use of some of the samples. During the short time that this Bureau has extended its work to include furnished room and boarding house inspections, something over 1000 of these places have been examined and it was a rare instance where we did not find one or more lengths of gas tubing in use in sleeping apartments such as shown by the picture. Hundreds of feet of this stuff have been removed from service and substituted with perfect and safe tubing. Our records show actual saving of life and property through a timely inspection while gas was escaping from the defects from the tubing in use.

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When the City of Newark first started to enforce the provisions of our municipal ordinance to prohibit the use and sale of other than tubing that was approved by the Bureau of Inspection of Gas and Gas Meters, the sale of gas tubing by the retail storekeepers was thoroughly regulated and all but reasonably safe tubing was cleared out of the stores. Where necessary the defective and dangerous types were confiscated and destroyed by this Bureau. This work has been very carefully continued up to date so that when we started our furnished room house inspection work, the tubing that was removed from service and destroyed from these places had to be replaced with

good tubing because in this city nothing else can now be purchased.

Unfortunately municipalities immediately surrounding Newark and including the City of New York have no gas tubing regulations in effect and the dealers in these cities are able to furnish the dangerous types of tubing to our citizens who are not eager to take advantage of the warning and protection that we have given them. It is my understanding that New York City has under consideration a gas tubing regulation ordinance at this time and that it is likely to be put into effect soon. We have learned only very recently that the Committee on Standardization of Gas Appliance Specifications of the American Gas Association has been working on flexible gas tubing specifications and standards and expects to have a report ready for the Association convention meeting in November. The writer has had the privilege of talking with Mr. W. T. Rasch, Chairman of this Committee, and has assured him that this Bureau of the Newark city government is in hearty accord with the splendid work the Committee is doing. We are anxiously waiting for the adoption of this report by the Association so that we can put the specifications and standards into effect as a part of our regulation in this city. We had expected to change our regulations to entirely prohibit the sale and use of bare metal tubing to take effect September 1st, 1921, but have decided to defer this regulation until the Association has adopted standard specifications. When we began the enforcement of our ordinance it was found that flexible gas tubing regulation was a new municipal departure, therefore we thought that this

ordinance should be gradually put into force by eliminating all paper tubing and then gradually tightening up our specifications until we felt that the time was ripe for a final ironclad standard which is the one we hope will be adopted by the Association.

The condition in the household use of gas tubing as revealed by the patched and defective gas tubing picture shows to our mind the great importance and the necessity of every municipal government throughout the country adopting and strictly enforcing some effective flexible gas tubing regulations and we know no better and more valuable source to bring this about than the Association through its individual members and gas companies. This influence is necessary because when gas tubing accidents become frequent or the matter of some sort of regulations is

brought to the attention of some of the municipal governing authorities there is strong tendency to give serious consideration to the absolute elimination of the use of flexible gas tubing. This is the uppermost thought in the minds of the municipal authorities because they are entirely unacquainted with the uses to which gas tubing is put. I sincerely hope that when the Association adopts a standard specification that the valuable and competent work of the Committee that submits this report will not stop at this point. There must be a continuation of this work either by the same committee or the work of carrying on the educational campaign that will be necessary to completely eliminate and get out of the market and use all types of dangerous gas tubing, must be assigned to some other active committee.

A New Business Wrinkle of Interest to the Commercial Man

	Date
TO	SALES DEPARTMENT
(nai	ne) of
(ada	dress)has
orde	red a meter installed today.
	se see that a representative immediately.

The above form will be found advantageous in notifying the Sales Department whenever a meter is set, thus furnishing a lead for the salesman in that district to follow up.

GENERAL

CHAIRMEN OF GENERAL COMMITTEES ORGANIZED TO DATE

Accident Prevention-CHARLES B. Scott, Chicago. Amendments to Constitution—WM. J. CLARK, Mt. Vernon. N. Y.
American Engineering Standards Committee, Representative on—A. H. HALL, New York, N. Y.
Award of Beal Medal—CHARLES A. MUNROE, Chicago,

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Calerific Standards—J. B. KLUMPP, Philadelphia, Pa. Chamber of Commerce, Representatives in—Gronce B. Correntou, New York, N. Y. Convention Program—J. B. KLUMPP, Philadelphia, Ph., G. I. VINCENT, Vice-Chairman, Syracuse,

Cooperation with Educational Institutions—J. A. Noscross, New Haven, Conn.

Devising Unit for Gas Measurement-R. B. Brown, Milwaukee, Wis.

Devising Unit for Gas Measurement—R. B. Brown, Milwaukee, Wis.

Eductional—Walton Clark, Philadelphia, Pa. Finance—E, H. ROSENQUEST, Bronx, N. Y. Gas Safety Code—W. R. ADDICKS, New York, N. Y. National Fire Protection Assn., Membership in—W. R. ADDICKS, New York, N. Y. Nominating—Charles L. Holman, St. Louis, Mo. Rate Fundamentals—R. A. Carte, New York, N. Y. Standard Gas Appliance Specifications—W. T. RASCH, New York, N. Y. United States National Committee of the International Commission on Illumination, Representatives on—Howard Lyon, New York, N. Y.

Lays Bare Evils of Tax-Exempt Securities

COME interesting figures on the taxexempt securities situation were given to the House of Representatives recently by Congressman Louis T. McFadden, of Pennsylvania, author of H. J. Resolution 102 which gives Congress the power to lay and collect taxes from whatever source derived. A copy of this resolution has been sent to all member companies, with a request that they endorse it by writing to the members of the Senate Finance Committee and the House Ways and Means Committee.

According to Mr. McFadden, the government is now losing annually from \$175,000,000 to \$200,000,000 on the taxexempt bonds already issued. He pointed out that \$14,000,000,000 of tax-exempt securities have been issued up to January, 1921, of which about half represents the debts of states, cities, school districts and other political sub-divisions, while half represents the obligations of the government.

"In the last few years," said he, "We have seen the personal wealth of the country so rapidly segregated into the tax-free

class that whereas the taxable income of individual taxpayers under the federal income tax law was \$992,972,985 in 1916, the amount decreased to \$731,372,053 in 1917, and to \$392,247,329 in 1918. It is not to be supposed that the actual income of these taxpavers had thus decreased. On the contrary, it is a safe conclusion that they had converted their wealth into tax-free securities so rapidly that at a similar rate of conversion they would be 'scotfree' of all income tax by 1922."

Stating that the issuance of tax-exempt securities had encouraged public debt, extravagance and inefficiency in the expenditure of the funds so raised, Mr. Mc Fadden dwelt upon the situation as it affects the financing of public utilities.

"The wealthy investor," said he, "receives as much net return from a 5 per cent tax-exempt bond as from a taxable industrial investment paying over 17 per cent. Railways, public utilities, and other industrials cannot compe'e on this basis, and are now being deprived of the capital which they need for expansion. This is a serious handicap to the normal progress of industry which should be terminated."

The Manufacturers Lose Their Secretary

M R. BARNES, as a result of several years' questionable health, has found it necessary to resign his secretaryship in the Manufacturers' Section. He has been associated with this work for so long that this organization will in truth be losing a member of its family with his departure.

With the birth in 1905 of the National Commercial Gas Association Mr. Barnes was on the list of Charter Members and for three years he was the third vice-president of that same body. From the beginning he was to the National Commercial Gas Association what he has been to the A. G. A., the secretary of the Manufacturers' Section, until the amalgamation of the N. C. G. A. and the American Gas Institute resulted in the present Association.

Much of the success of the exhibitions which are a large part of our annual conventions—certainly a large part in the



work involved—has been due to Mr. Barnes' conscientious efforts.

He has been an enthusiastic and earnest worker—we wish him well!

The magazine is proving most helpful to me in my work of instruction at the University of Wisconsin. It is also a most excellent source to which I can refer students in my classes for material relating to the gas industry. I find every issue filled with information which cannot fail to be of interest and help those engaged in the gas business.

O. L. KOWALKE,

Professor of Chemical Engineering, Wisconsin.

The Greatest Boat Trip Anywhere

MEMBERS and friends of the Canadian Association who are fortunate enough to be able to go to Toronto and take the boat trip arranged to take the party from that city to Montreal and return will experience one of the most pleasant times ever arranged for gas men.

The party will leave Toronto on the steamer "Toronto" at 3.00 p. m. Standard Time, Tuesday, August 23rd, and sail across the lake to Rochester. They will leave Rochester at 10:45 p. m. and after a night's sailing down Lake Ontario they will arrive at Kingston, Ontario, one of Canada's three distinct military towns. Leaving Kingston the party will sail past Fort Henry and enter that part of the St. Lawrence known as the Lake of the Thousand Islands—Manatoana, the Garden of the Great Spirit.

It is no stretch of the imagination to say that few on board will be prepared

Mr.

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for the magnificent kaleidoscopic view that is thrust upon one's vision, as rounding Wolfe's Island you enter the very heart of the world's most famous fresh water archipelago. As far as the eye can reach, island upon island rises from the crystal waters, fairy oases in a desert of snow. Islands are everywhere; they encompass one about on every side. They seem to float by in a never-ending procession.

It is a region rich in historic interest and redolent with tradition.

The first stop after leaving Kingston is Clayton, frequently called the "Gateway of the Thousand Islands" and a very popular resort.

Leaving Clayton the boat proceeds to Alexander Bay, passing on the way, Frontenac Island with its beautiful summer homes; Wellesley Island, the site of Thousand Island Park; Peel Dock, where



the steamer "Sir Robert Peel" was burned by the celebrated "Bill Johnson" in 1838; Fisher's Landing, Jolly Oaks and St. Lawrence Park.

Alexander Bay is the Newport of the frontier, its shores and the shores of the innumerable islands that encompass it, being studded with fashionable hotels and beautiful private villas.

Brockville is the next stopping place. Leaving Brockville the party proceeds to Prescott, where a change is made to the steamer "Rapids King" or "Rapids Prince" for the balance of the trip to Montreal.

Shortly after leaving Prescott, the waters that for so long have flowed as peacefully as the gentle brook through the meadow receive a sudden impetus as though impelled forward by an unseen force, and soon the Galops, the first of the seven famous rapids of the St. Lawrence River is encountered, followed during the remaining hours of the day by the Rapids du Plat, the Long Sault, Cot-

eau Rapids, Cedar Rapids, Split Rock Rapids, Cascades and the Lachine.

If the voyage through the Lake of the Thousand Islands brings a sense of peace the journey down the rapids of the St. Lawrence brings buoyant exhilaration for it is as though the boat had been suddenly transplanted from calm lake to angry sea, the billows of which rise above the rugged rocks and break in mountains of spray.

The Lachine Rapids are the most famous navigable rapids in the world and anyone who has not passed down these ought to make it a point to join the members of the Canadian Gas Association.

Montreal is reached shortly after passing down the Lachine Rapids, Wednesday evening at 6:45 p. m. Daylight Saving Time.

An executive meeting will be held at the Windsor Hotel at 8:30 p. m. Wednesday. The business sessions will be held Thursday, August 25th, and Friday, August 26th.

Not all the companies really understand what service means—real service—using the word in its broadest sense. Such real service commences at the top of the company and works down and percolates through to the outer edges of the corporation, so that all points of contact are guarded and all methods of intercourse are watched, and the consumer is considered in the manner which makes him believe he is regarded as an individual with rights and desires which the company recognizes and respects.—Edward N. Hurley.

ACCOUNTING SECTION

W. H. PETTES, Chairman

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EWALD HAASE, Vice-Chairman

H. W. HARTMAN, Secretary

MANAGING COMMITTEE - 1921

At Large

BRUNDACE, H. M., New York, N. Y.
CONOVER, J. L., Newark, N. J.
DORRING, W. A., Boston, Mass.
Frants, E. J. (Mfr.) New York, N. Y.
HEIRS, J. W., Philadelphia, Pa.
JAMES, F. M., Autora, III.
JOHNSTON, ERNEST, SYTRCUSE, N. Y.
MCLEOD, J. E., St. LOUIS, MO.
MEYERS, W. J., New York, N. Y.
SAUER, W. A., Chicago, III.
SCORKLI, E. C., Rochester, N. Y.
STERRETT, W. G., Chester, Pa.

Representing Affiliated Societies

Representing Affiliated Societies
ARMSTRONG, J. J., Toronto, Can. (Canadian)
CHAPIN, C. H. B., New York, N. Y. (Empire State
G. & E. Asan.)
FATON, H. M., Detroit, Mich. (Michigan)
HAARE, EWALD, Milwaulkee, Wis. (Wisconsin)
HOUGHTON, W. E., Los Angeles, Cal. (Pacific Coast)
HOY, CHAS. W., Glassboro, N. J. (New Jersey)
JAMES, F. M., Aurora, HI. (Hilmois)
MAYNARD, H. B., Waterleo, Jowa (towa)
MCCABE, J. B., Dallas, Texas (South Central)
NORTON, W. F., Nashua, N. H. (N. E. Gas Eng.)
POSTER, EDW., Philadelphia, Pa. (Pennsylvania)
SHEARON, B. P., Hammond, Ind. (Indiana)
SPENCE, GRO. H., Fayetteville, N. C. (Southern Gas)

CHAIRMAN OF SECTION COMMITTEES ORGANIZED TO DATE

Fire Insurance Rates-E. C. Sconell, Rochester, N. Y.
Joh Order Systems—F. M. JAMES, Aurora, Ill.
Office Labor Saving Devices—J. I., CONOVER,
Newark, N. J.
Continuous Inventory of Fixed Capital—Errest
JOHNSTON, Syracuse, N. Y.

Standard Classification of Accounts and Form of Annual Report to Public Service Commissions— W. J. Meyers, New York, N. Y. State Representative—Ewald Hass, Milwaukee, State N Wis. Uniform Accounting Nemenclature—W. A. SAUER, Chicago, Ill.

Have You Forwarded Data on Your Fire Insurance Rates?

N May 26th the Committee on Fire Insurance Rates sent to all member and non-member Gas Companies a form of information blank in duplicate calling for data relating to the premiums paid and fire losses sustained by gas companies covering a period from 1916 to 1920 inclusive. An encouraging response has been received to this request for data and the Committee's thanks are due the Companies who have so promptly returned their blanks.

However, the main purpose in compiling these statistics has been to impress Insurance Underwriters with the need for decreasing present fire insurance rates. This purpose can only be accomplished if the statistics compiled (particularly with regard to fire losses) are approximately complete for the whole industry.

It has been decided therefore, to allow the Fire Insurance Rates Committee an extension of time from August 1st (the date originally set for submitting their report) until August 25th to permit a special effort being made to have all gas companies report who have not yet submitted their returns.

In this connection some of the companies who carry self insurance have returned their blanks merely stating this fact and giving no data to indicate the fire losses they have sustained over the period covered. Other companies while giving information as to insurance carried and premiums paid have left blank the item as to losses sustained. This may mean they have sustained no losses, but if so, such a statement should be made positively in the space provided for this

item. We wish to request that all companies, whether they carry their own insurance or not, be sure to advise definitely as to their *fire losses*.

This is the most important single item necessary to impress underwriters with the need for decreases in present rates, and unless this can be reported by our Committee as covering the larger part of the industry most of the benefit of the committee's report will be lost. Companies who have not reported fully on this item are urged to forward full information promptly to the committee, and com-

panies who have as yet made no return are requested to fill out and forward information blanks without delay so that the Committee will have an opportunity to recapitulate all returns in their report at the Convention. No hesitancy need be felt in supplying this data as all reports will be treated confidentially and the figures reported as totals and averages, in no way indicating their source. If full information has not been forwarded covering your company send if in now so that it may be incorporated in the Committee's report before August 25th.

Uniform Classification of Accounts

EARLY in June last it came to the attention of the Accounting Section that the statisticians of the Public Service Commissions of the States of Oregon, Washington and Idaho had submitted to their Commissions recommendations for a modification of the uniform system of accounts which was approved and recommended last November by the National Association of Railway and Utility Commissioners for adoption by the various State Commissions.

Careful consideration was given by the Committee on Uniform Classification of Accounts for Gas Companies to the recommendations made by the statisticians above referred to, and it was decided to request the Commissions of those three states to defer action upon the recommendations of their statisticians until a thorough study of the proposition could be made by Committees of the American Gas Association and representations submitted to the Commissions. At a joint hearing in Portland, Oregon, by commis-

sioners from that state and the State of Washington, held in the latter part of June, it was decided that the request for postponement of the hearing could not be granted, but that no action would be taken until after August 1st, thus allowing the American Gas Association the opportunity to file a statement of its views respecting the changes proposed in the classification. Accordingly a joint committee was appointed to consider the matter from the standpoint of the American Gas Association and the National Electric Light Association and a memorandum was drawn up presenting the views of the Gas Association and filed with the commissioners of the three states concerned in the latter part of July. Copies of this memorandum were furnished to company members in those states for their information and guidance and it was expected at the time of going to press that arrangements would be made to distribute copies of this memorandum to all gas company members.

Customer and Employee Stock Ownership

C. A. TUCKER, Rochester Gas & Electric Corporation, Rochester, N. Y.

AMPAIGNS for the selling of stock to customers and employees have been inaugurated in recent years by many Public Utility Companies, and in most cases with considerable success. Probably in the future there will be a greater and more general effort along these lines, with immense benefit to the utilities. The liberal distribution of stock locally among customers and employees of a utility has a salutary influence on its affairs because of the closer relationship of being in fact part proprietors through stock ownership. Each stockholder feels that he or she is a part of the organization and at all times has the welfare of the utility in mind, realizing that their financial interest is best being served by giving it wholehearted support in every way possible. Customer stock ownership also has the advantage of discouraging thoughtless criticism from which so many public utilities suffer these days. Much criticism comes from the fact of the utility being a virtual monopoly and large in size of capital and facilities, thus making the customer feel a certain futility in bringing their small affairs before the management for adjustment. Customer and employee ownership helps to dispel this feeling in a community. This is so from the fact that every customer has some influence among his friends, and when these friends realize the financial interest of one of their number in a public utility they hesitate to make unwarranted complaints, as they would feel by so doing that they were doing something to injure the interests of those with whom they were friendly. Of course this would not apply in every case, but such influence would have its beneficial effect.

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Having in mind the desirable results to be obtained as above briefly outlined, the Rochester Gas & Electric Corporation began a campaign for the sale of 7% Preferred Stock to its customers and employees. It was something new in Rochester, as heretofore no opportunity had ever been given to local investors to become interested in the utility serving them. This campaign was started in April of 1918 at a time when the country was disturbed by war conditions, and the Bond campaigns were being The sale has continued up to this time and considering all conditions has been quite successful, \$1,885,000 of the stock being sold at par and accrued dividend. Of this amount about 72% was paid for outright and 28% was taken on the installment plan of \$10 per share per month. A number of subscriptions under the installment plan were taken for one, two, four, five, and one for seven thousand dollars. Of course the bulk of the installment subscribers were for from one to five shares each. Special effort was made to have as wide a distribution of the stock as possible rather than to have fewer stockholders with larger holdings, the feeling being that the man or woman with one or two shares had the same influence among their friends as the owner of a larger unit. There was also another point in this. The stockholder with one or two shares was most likely to talk about it with relatives and friends and try to induce them to become stockholders, whereas the one with ten or twenty shares was more apt to keep the knowledge to himself, and this did not give the same aid in securing additional stockholders. This policy

seemed to be a good one as it resulted in sales to over 3,000 customers and employees, and its beneficial effect in the community is observed daily. There is a more generally favorable sentiment since such a large number of local residents have become financially interested in the company, and it is more generally thought of as "Our Company" in the community which it serves.

In starting the sale a liberal use was made of newspaper advertising, using every newspaper in the city. This gave wide publicity to the stock selling campaign, and the results were immediate. The advertising has been almost continuous since the beginning, there having been a few occasions when advertising was omitted for three or four days at a time. When advertising was stopped for a few days, invariably inquiries were made asking if there were any more stock available. This fact indicated that the advertising was being read from day to day by people who had not yet made up their minds to buy, but who, when it seemed as though the opportunity had gone by, suddenly made up their minds that they wanted to purchase the stock.

The co-operation of employees was also solicited and obtained. Group meetings were held with them and the reason for issuing the stock was explained to them in detail and the benefits that were to accrue to all, so that they might intelligently present the matter to prospective buyers. Every employee of the Company was considered an authorized representative of the Company for the sale of stock, and many of them entered into the game with spirit and secured a large number of buyers for a considerable number of shares. The commission allowed employees for sales was very

moderate, it being only fifty cents per share, but even at this small rate some of them earned as high as two or three hundred dollars the first year.

Gaining the co-operation of employees in selling Company Stock has advantages probably not often thought about. Many employees think without stopping to reason that a company, because it is big, must always have on hand plenty of funds to take care of any condition. They do not realize the planning necessary and the efforts put forth by the management to provide necessary funds for extensions. When many of the employees started out to help in the sale of stock, their experience along this line brought home to them the fact that dollars did not grow on bushes which the Management could shake down for all their needs. It changed the viewpoint of a great many, and they now have a better realization of what financing a company means, and this knowledge makes them better and more considerate employees. While the enthusiasm of the employees has worn off since those easy to sell to have been obtained as stockholders, nevertheless the employees are constantly looking for an opportunity to make a sale, and do bring in the subscriptions. This cannot be accounted for altogether by the small commission to be obtained, but largely by an increased interest on their part in the affairs of the company, they realizing that for them to have better opportunity in their work the Company must progress, and to progress it must have more capital with which to extend its field of operations.

In the newspaper advertising of the sale of stock emphasis was laid on customer and employee ownership. The endeavor was to bring home to everyone the desirability of becoming a stockholder partner in the utility serving them and thus share in the earnings which they have helped to create, and also to create a feeling of confidence in the safety of the investment. The results along these lines have been satisfactory to date and no doubt will continue to be so.

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In the Rochester Gas & Electric Corporation sale of 7% Preferred Stock over three thousand new stockholders have been obtained, including 750 employees out of a total of 1,250, and many of these have bought from two to fifteen different lots. It is almost a daily occurrence for some stockholder to increase his holdings. The sale is having a cumulative effect and it is believed that it can go on indefinitely if necessity requires it.

This entire sale of 7% Preferred Stock has been effected under rather adverse general conditions and without any effort whatever being made to sustain the market for the stock by repurchase or otherwise.

In taking subscriptions for stock one scheme has been used that has worked out quite well, and that is the taking of subscriptions for a deferred date as selected by the prospective purchaser. Many, it was found, did not have the ready money at the time of inquiry about the stock, but would have it available at a later date. It was in these cases that endeavor was made to have them sign up for the date most convenient for them. It was also explained to them that no liability was incurred upon their part by thus signing, that they could complete the transaction at the time designated or omit to do so, as they saw fit. The idea in this was that if a person once made up their mind to do a thing at a certain time they were most likely to do it. Furthermore, having once made up their mind to take stock, any other competing salesman had not only to convince them of the merits of his proposition, but also secure a reversal of a previous decision, something quite difficult to do. Experience has shown in taking over \$500,000 of deferred subscriptions that only about 7% fail to complete eventually.

The installment plan for purchase of stock has been a large factor in the sale. about 28% of the total sales having been made on this plan. It has been urged as a savings scheme for small investors, In the beginning it was required that \$10.00 per share be paid at time of starting, and \$10.00 per share per month thereafter until \$100.00 per share had been paid. Interest on installments was allowed at rate of 7%, the same rate as dividends upon the stock, adjustment of interest and accrued dividend being made on completion of last payment, when subscription receipt was issued to be exchanged at a later date for the regular Stock Certificate. In 1921 the payments were changed from \$10.00 to \$5.00 per share per month, with the idea of securing a larger number of the younger element of the community to use this stock purchasing plan as their regular savings account, and it has worked out as planned. Our experience has been that most of those who complete the purchase of one share want to buy another one and then more of them as time goes on. The young people of today are to be our large purchasers in the future, and the younger they are in beginning the saving habit in buying stock, the more fixed the habit becomes as they grow older. Of course the large number of small purchases entails considerable extra work for the dollars immediately received, but the ultimate benefit in future years is bound to be large.

In conducting this sale of stock it has been the aim to create a feeling of confidence in it and the company issuing it. No one is urged to buy if they have any doubts about the wisdom of the investment, as a timid stockholder is most likely to be a short time one. The desirable kind are those who invest for "keeps." Stock sold to that kind of an investor is not likely to come on the market soon in competition with the regular sale. Purchases in the name of husband and wife or survivors are of a kind that are likely to stick for a long time, as it requires both of them to decide favorably in order to make a transfer. This kind of decision is not often made on the spur of the moment. A suggestion often leads the purchaser to have the stock in two names, and it usually secures the good-will of the wife towards the Company for aiding in protecting the interests of the wife in the investment. The wife will usually urge further investment under the same conditions, so sales are liable to increase in these cases.

After the middle of the dividend quarter when parties come in to purchase stock for cash, inquiry is made of them whether they are to draw on an interest account in bank. If so, suggestion is made that they make a deferred subscription for the next dividend period, so as not to lose any interest at the bank. This is possible in Rochester as all banks credit interest semi-annually on a quarterly basis, any withdrawals during a quarter affecting the interest for the full quarter. While the saving to the prospective stockholder is not large, nevertheless the suggestion is appreciated, and it carries the idea to them that their interest is being looked after, and they have greater confidence in the Company. Many little things like this come up and are handled in a manner so as to give the impression that they are a member of one big stockholder family that always has their individual interests in mind.

Considerable effort has been made by those having the sale of stock in charge to cultivate acquaintance with stock purchases, so that they might feel that there was something else besides the mere stock certificate received for the money paid. Pleasant acquaintance goes a long way toward creating confidence, and that is the aim in everything that is done, for it is expected that stock sales are not for a day or week, but are to continue for years, and the real foundation for these future sales must be made in the present if future sales are to continue on a successful basis.

"The monthly statements of every company should have printed on them the name and place of the party to whom complaints should be made."—James A. Perry, President, National Association of Railway and Utilities Commissioners.

Commercial Office Accounting

CHAS. W. RISELEY, Public Service Gas Co., Jersey City, N. J.

"OUT of 250,000 business corporations that reported to the Federal Trade Commission, 100,000 showed no net income at all, only 60,000 earned over \$5,000 a year and 90,000 earned less than \$5,000 per year. One half of all the people in business in this country do not know from day to day whether they are making money or losing money. They have no accurate system of accounting. They work by rule of thumb." Statement of Edward N. Hurley, former Chairman of the Federal Trade Commission.

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This condition together with the requirements of the Government income tax statement crystallized in the minds of the business man the need of a comprehensive accounting system.

Gas Company directors early found that intelligent accounting is the foundation of efficient management and the accounting specialist is an executive of the Corporation and very often a member of the Board of Directors.

The gas business as a public utility is only about twenty years old and the commercial office accounting at that time was crude and burdensome. Indexers had a bound book in which the names and addresses of customers were recorded and the pages ruled for twelve to eighteen months use, the bookkeeper received the book at the end of the day and was compelled to enter in the ledger before he left the indexes so the book could be used by the indexer the following day. All bills were written out in long hand, the cashier listed all coupons each day in a bound book and in posting credits the

amount was again entered in the ledger this time with the date paid.

To-day we have an indexer's loose leaf sheet printed by the addressograph containing six names and addresses of customers, the meter number, folio and line number of ledger account and new sheets are used each month. The customers are listed on the sheets according to addresses and follow the same geographical order of the ledger which facilitates indexing and entering. These sheets are turned in each day, the ledger clerk entering the index and making the extension, turns the sheets over to the billing clerk or another ledger clerk, who makes out the bill. The bills are also printed by the addressograph in the same geographical order as the ledger and indexing sheets, and contain two coupons, one for the cashier and the other for office or collection department use.

The cashier arranges coupons according to ledger folio and lists them on adding machine. His cash book merely shows the total daily receipts according to classes, Gas Sales, Sundry Sales, Deposits, etc.

The regular gas sales ledger contains spaces for the customer's name, address, meter data, application number and security, and twenty-four months record, columns for date, index, gas consumed, amount of bill, and balance at end of the month. In posting credits in this ledger a dating stamp is used and the impression made directly over the amount of the charge, a payment in part is indicated by a red ink entry of the actual amount paid over the amount charged.

NOTE:—Copies of the various forms referred to in this article will be furnished at a nominal cost to members interested, on application to Association Headquarters.

The prepayment gas sales ledger is the same form as for regular meters, except that it provides two columns for customer's debit or credit; a net amount on the date meter was lifted. The prepayment indexer's sheet is a duplex slip, one left with the customer as a receipt, the other a cashier's coupon. Prepayment meter index slips are printed monthly on the addressograph and follow the geographical order of consumers' ledgers.

Sundry Sales records include looseleaf ledger, also arranged geographically following consumers' ledgers to facilitate adding sundry sales balances on gas bills, a journal in which the charges are listed according to number only and the amount entered in respective column according to class of work, such as gas ranges, water heaters, other fuel appliances, piping houses, arc lamp maintenance. charge slip is a combination order and charge ticket, seven copies being made at one time on the typewriter, two copies retained at the office as a check, the others to the shop, where two copies are retained as a check on the fitter, the storeroom retaining one copy as a voucher for the issue of the material and the other copy left with the customer at the time of installation as a bill. The original being returned to the office after completion and recorded in the Sundry Sales Journal and then attached to the customer's contract and filed numerically.

Consumer's deposit as security for payment of bill is handled by issuing certificate of deposit from a bound book, the certificate having two coupons, one remaining in the book, the other used by the cashier and bookkeeper to list the name in a bound book indexed according to surname of depositor, both books being balanced periodically.

Overpayments made by customers are recorded through account "Due Consumer's Overpayment." The ledger clerk discovering an overpayment immediately changes his cash listing and credits the payment to D.C.O.P., making the entry in a bound book and issuing a petty cash slip, charging D.C.O.P., to the cashier who issues check to customer in refund.

Budgets and Estimates

The bookkeeping having recorded the transactions of the business it is for the accountant to assemble, classify, and analyze the facts of these transactions that the pulse of the business may be known and the budgets and estimates prepared. Each month a statement is prepared showing the cost of each commercial activity. such as Salaries of Indexers, Expenses of Indexers, Salaries of Collectors, Expenses of Collectors, Legal Expenses, Divisional Supervision, Local Management, Ledger Clerks and Miscellaneous Clerks salaries, Cashier's Department salaries, Contract Department salaries, Printing and Stationery, Postage, Janitor and Elevator Service, Miscellaneous Office Supplies and Expenses. This statement shows the amount expended monthly for each classification with the cost per meter per month with the same information for the month of the previous year and also for the accumulated months for the current year compared with the same period the year previous.

A budget of cash requirements for expenditures is prepared yearly and embraces the estimated needs by months for each classification of Commercial Office Expense. The budget requires a careful study of actual expenses for the current year and provision for increased help and equipment to provide for an expectant

(Continued on page 447)

ADVERTISING SECTION

M. C. ROBBINS, Chairman

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A. A. HIGGINS, Vice-Chairman

CHARLES W. PERSON, Secretary

MANAGING COMMITTEE - 1921

At Large

CLARE, WM. J., Mt. Vernon, N. Y.
Ezsman, Ralph, Brooklyn, N. Y.
Habilan, James P., Newark, N. J.
Mullanky, B. J., Chicago, Ill.
MacSweeney, Joseph P., Rochester, N. Y.
Pettergill, Andrew F., Js., Cambridge, Mass.
Wagner, F. H., Baltimore, Md.
Warner, Eco. H., New York, N. Y.
Weish, William J., Stapleton, N. Y.

Representing Affiliated Societies

ALLEN, GEO. W., Toronto, Can. (Canadian)
BURNS, J. J., St. Louis, Mo. (Missouri)
CARRAWAY, LEARE, Norfolk, Va. (Southern)
CHAPIN, C. H. B., New York, N. Y. (Empire State
Gas & Electric Association)
FRANKLIN, S. J., Millville, N. J. (New Jersey)
FUGATE, FRANK, Detroit, Mich. (Michigan)
GOULD, WM, Boston, Mass. (N. E. Gas Eng.)
HARTOG, JOHN H., Portland, Ore. (Pacific Coast)
JASPERSON, R. C., Chicago, Ill. (Wisconsin)
LASPER, F. M., Chicago, Ill. (Illinois)
EEGLISH, A. L., Council Bluffs, Ia. (Iowa District)
MULHOLLAND, S. E., Fort Wayne, Ind. (Indiana)
ROLSTON, R. J., Philadelphia, Pa. (Pennsylvania)

The Futility of Campaigns

ECENTLY we issued a questionnaire to gas companies using our advertising service, asking them for a frank opinion as to its value. The answers received were not only illuminating but, in some cases, startling. For example, we learn for the first time that some companies have stopped all good-will advertising because they cannot make needed improvements to their plants and take care of growing service demands. are not advertising because business is in the doldrums, and a few others are accumulating our good-will advertisements with the intention of using them in a socalled campaign later on.

Evidently some much-needed educational work is necessary to get companies away from the campaign idea and to win them over to a policy of advertising all the time. In the last issue of this magazine we stated that the proper time to use goodwill advertising was all the time. It is worth repeating again. In reality there is no such thing as a so-called advertising campaign.

Only the other day Harford Powel, Jr., editor of Collier's, talked upon this very subject before a large gathering of utility men. Said he: "Either you advertise or you don't advertise. The word 'campaign' is too limited to describe this thing. You might as well speak of a 'breathing campaign' or an 'eating campaign.' You can stop breathing and let your lungs rest, but more of you will soon be at rest than your lungs.

"Do not think of advertising as something to be done by fits and starts. Don't think that a campaign started and finished this year will produce a finished and final effect. If you have any such idea, take twenty deep breaths right now and then try to stop breathing until lunch time.

"Some old minister went to Billy Sunday one day and said: 'You're a fake. You get people all stirred up. They hit the trail. But your conversions don't last.' 'Well,' said Sunday, 'neither does a bath.'"

Are You Interested In Public Utilities?

Are you a bank depositor?

If you are, then you are financially concerned in the stability, strength and prosperity of the nation's public utilities from the viewpoint as well as from the standpoint of a user of electric light and power, gas, telephone and electric traction service.

Are you a holder of, or beneficiary under, a life insurance policy?

If you are, then as such you have a direct interest in the prosperity of the public utility corporations.

These are facts?

There are 52,221,457 life insurance policies in force in this country, representing \$29,797,000,000 outstanding insurance. More than \$300,000,000 of the assets of these companies are invested in electric light and power company securities. Upon the stability and worth of those securities, and, therefore, upon the stability and prosperity of the utilities themselves, depends the stability and worth of the insurance companies in the same ratio the amount invested in these securities bears to their resources. Therefore, every holder of, and beneficiary under, these 53,221,457 policies is interested financially in the worth of the securities.

There are 27,000,000 depositors in the 29,123 banks of the country. In excess of \$1,700,000,000, or approximately an average of \$63 for each depositor, is invested in public utility securities. Stockholders of banks, depositors in banks, and borrowers from banks therefore have a direct financial interest in the strength of public utilities.

The moral is plain:

The financial prosperity of the utilities should be just as much concern to you from a purely selfish financial consideration as the adequacy of their services is for business and social reasons.

THE A. G. A. GOOD-WILL ADVERTISING SERVICE

Advertisement No. 16



Service the True Function

Primitive man was dependent upon his own efforts for the necessities of life. Heat and light came from fuel dragged from the nearby woods. The only power was man's brawn and the domestic beasts.

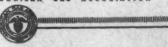
Today public utility companies supply very many of our daily necessities.

This is pre-eminently true of the gas business. Your Gas Company is not content simply to supply you with so many thousand cubic feet of gas. It furnishes gas when and where and in what quantity you want it. It virtually cooks your meals, heats your rooms, lights your home. It offers you a service you could not do without; and back of it are trained labor, substantial investment and a directing genius, all working together to merit your good will by efficient, faithful service.

Gas never fails!

ATERIA PIRA DE A PORTO DE LA RESERVA DE

EMBER OF THE AMERICAN DAS ASSOCIATION



This advertisement is issued in two sizes, three and four-column newspaper width. The art design is good for a number of impressions. You may change the text if you desire.

PRICES.

3-column matrix
\$ 3.00 \$ 3.00 \$ 4.00

Twelve advertisements (Nos. 13 to 24) \$ \$36.00 \$ \$36.00 \$ \$48.00



To You And Our Employees

"With this company you are entitled to—and are promised—a courteous, helpful service from our employes. We recognize that humanly-rendered service can't be controlled with all the surety of machine-operations; but employes who can't or won't deliver the kind of service we promise you simply can't stay on our payroll. You are promised satisfaction if you will report whatever trouble you may have to us."

Northern Indiana Gas and Electric Co.,

The Gas Co.

Phone 5000.

S. E. Mulholland, Vice President.

Here is an open declaration of policy by a company that is a persistent advertiser. Note the element of personal responsibility that is in the advertisement by reason of the Vice-President's name. The illustration at the top is taken from our 6th good-will ad. It shows one of the many uses to which our advertisements may be put after they have served their original purpose.

COMMERCIAL SECTION

H. S. SCHUTT, Chairman

A. P. POST, Vice-Chairman

LOUIS STOTZ, Secretary

MANAGING COMMITTEE - 1921

At Large

ARBOTT, M. E., Taunton, Mass.
Barnts, Cyrus, Boston, Mass.
Barnts, F. R., New York, N. Y.
Bartold, Wm. H., New York, N. Y.
Barnts, E. E., Chicago, III.
Gaston, Louther, Lebanon, Pa.
Gould, Wm., Boston, Mass.
Billippe, C. N., New York, N. Y.
Hewitt, Arthus, Toronto, Ont., Can.
Kann, A. M., Hamilton, Ohio
Leared, J. G., Chicago, III.
Lekker, Frank, Kalamazoo, Mich.
Lorenia, Henry O., New York, N. Y.
Long, H. J., New Brunswick, N. J.
Myers, J. B., Philadelphia, Pa.
Childe, F. J., Philadelphia, Pa.
Schutt, H. S., Philadelphia, Pa.
Shattuck, J. D., Chester, Pa.
Sherwood, J. M., New York, N. Y.
Smith, Charles S., Philadelphia, Pa.
Sherwood, J. M., New York, N. Y.
Stephany, E. J., Philadelphia, Pa.
Sherwood, J. M., New York, N. Y.
Stephany, E. J., Philadelphia, Pa.
Stephany, E. J., Philadelphia, Pa.
Stephany, E. J., Philadelphia, Pa.

Representing Affiliated Societies

Representing Affiliated Societies

Burke, E. J., Indianapolis, Ind. (Indiana)

Chamberlain, G. R., Grand Rapids, Mich. (Mich.)

Chapin, C. H. E., New York, N. Y. (Empire State)

CLARK, H., Chicago, Illinois (Illinois)

CORL, WILEY F., Mexico (Missouri)

CRAPTS, H. C., Pittsfeld, Mass. (N. E. Gas Eng.)

CRAPTS, H. C., Pittsfeld, Mass. (N. E. Gas Eng.)

CRAPTS, H. C., Pittsfeld, Mass. (N. E. Gas Eng.)

CRAPTS, H. C., Pittsfeld, Mass. (N. E. Gas Eng.)

CRAPTS, H. C., Pittsfeld, Mass. (N. E. Gas Eng.)

CRAPTS, H. C., Pittsfeld, Missouri)

CRAPTS, J. J. New Orleans, La. (South Central)

HANLAIN, J. P., Newark, N. J. (New Jersey)

JOHNSON, W. B., Toronto, Ont. (Canadian)

McArdle, Jas., Macon, Ga. (Southern)

St. John, John, Madison, Wis. (Wisconsin)

TAVLOR, W. H., Omaba, Neb. (Iowa District)

WKISS, FRANK, Los Angeles, Cal. (Pacific Coast)

CHAIRMEN OF SECTION COMMITTEES ORGANIZED TO DATE

Gas Lighting—F. R. BARNITZ, New York, N. Y. Heating—GEO. E. BENNITT, New York, N. Y. Industrial Fuel Sales—HENRY O. LORBELL, New York, N. Y.

Industrial Fuel Contracts (Sub)— Chas. S. Smith, Philadelphia, Pa.

Customer Service—J. B. MYERS, Philadelphis, Pa. Merchandising— H. J. LORG, New Brunswick, N. J. Program—F. J. RUTLEDGE, Philadelphis, Pa. Rate Structure—J. D. SHATTUCK, Chester, Pa.

Service to Customers

R. F. BONSALL

Manager, General Service Department Consolidated Gas, Electric Light and Power Company of Baltimore

T has been the practice of the Gas Industry for years to see that its customers receive the maximum benefit from the service supplied. In fact, many companies in improving gas conditions at the customer's premises go far beyond that for which they would ordinarily be responsible, in their effort to establish and maintain satisfactory relations with the community served. The desire and ability of the public utility to do this is often misunderstood and little appreciated by the public, or even taken advantage of. For these reasons, the method employed

in the soliciting of complaints differs greatly according to local conditions.

The Baltimore company recognized a number of years ago that its success would be measured in terms of public good will; therefore it established a General Service Department, whose duty it is to look after the customer's wants and desires, and from the company's standpoint, the betterment of the service.

As one of the most essential factors in the earning of good-will is an adequate and dependable supply of gas at all times, as well as the proper utilization of such gas, we have devoted a considerable amount of time in educating our consumers to notify us of any impairment of service. Several months ago, we began placing a sticker on each monthly bill, requesting the customer to report any unsatisfactory conditions to us (see specimen). While this has continued for some three months, the results have not been as large as we wished, and we were satisfied they did not truly reflect the real conditions.

Subsequent to the placing of the sticker and during the time it has appeared on the bills, we have had several articles in the newspaper by one of our officials, calling attention to the fact that the company invited complaints and was prepared to remedy their cause without delay. While this resulted in the correction of a substantial number of cases, we still felt that in serving 160,000 customers in all walks of life, and in all sections of the city, there must of necessity be a larger number of cases where inadequate service was being supplied than had been reported.

A further campaign of developing interest and improving conditions on customers' premises was carried on through the organization. Monitors were appointed at the various stations and office to transmit to the General Service Department all complaints they heard either in business or social hours.

It was then that a more positive method was adopted. A return postal card campaign was inaugurated—one of these cards being sent to each of our 160,000 gas customers (see specimen). These cards are issued at the rate of about 3500 per day. They are run through the addressograph machine twice, imprinting the name and address on both cards, so that the only action necessary on the customer's part is for him to check any item that he wishes investigated, detach the return part, and mail it to the company. Upon receipt of the card an order is sent to the Operating Department that day, with the result that a man makes an investigation, usually within two or three days.

The completed order is returned to the General Service Department by the Operating Department for tabulation of results found; also for check as to work done by

IS YOUR GAS SERVICE SATISFACTORY?

IF NOT, LET US KNOW. WE CAN AND WILL MAKE IT SATISFACTORY.

TELEPHONE ST. PAUL 8000 GENERAL SERVICE

THE GAS AND ELECTRIC COMPANY

To our customers:

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It is our desire that you receive the best gas service. With this in view, we shall appreciate your noting on the attached card, whether or not your gas service is satisfactory.

If it is not, please specify whether the trouble is with the lighting, cooking or heating appliances.

This information will assist us in maintaining good gas service.

CONSOLIDATED GAS, ELECTRIC LIGHT AND POWER
COMPANY OF BALTIMORE

General Service Department

Water Heater Heating Appliance	
leating Appliance	
- ippiniee	
Supply of Gas	
	****** ***********************

Two Sides of the Postal Card Used

calling customer on the 'phone to learn it the conditions complained of are now satisfactory. Where we can not reach customer on the telephone, we have a man interview the customer, or possibly write him a letter. In this way, we endeavor to check the work that was done on or about thirty per cent of the completed tickets.

While the number of returns from this campaign is not as high as we hoped for, the greatly increased number of complaints received by this method shows that one of the big problems of the gas industry is to find some way of getting in touch with its customers and inducing them to make known their gas troubles, remedying any defects which are found.

An interesting story is told by an analysis of the campaign from its start to May 1st:

and the same of th
Postcards issued125,508
Replies received9,165
Percentage returned of total issue
Customers satisfied2,104
Percentage of total returns
Complaints received7,061 Percentage of total returns
The causes of complaints were found to be:
Company's Equipment
Services cleared or renewed,115
Meters or connections changed
145

Total	260
Customers' Equipment	
Ranges adjusted or re-	
paired4,837	
Water heaters adjusted or	
repaired1,066	
Lamps adjusted or re-	
paired1,375	

Misc. Appliances122	Misc. Appliance	22
House Piping and Range Lines Stoppage cleared or Repairs made727	and	7
Fixtures Stoppage cleared or Repairs made386	Fixtures	36
Miscellaneous work done352	Miscellaneous	2

Grand total of all complaints.......9,125

Note: This represents the work done
on 6526 orders, so that the average per
job would be 1,30.

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To show the rate at which the work is being done, the pending file on May 1st was 535 orders, of which 136 were sent to the shop on April 30th. This leaves a net total of work on the street of 399 orders, or less than 3 days' average receipts.

The post cards in some cases contained statements criticizing the quality of gas, or other matters indicating dissatisfaction with our service. Many of these were handled as specials by representatives of the General Service Department, with the result that in many instances better service relations were established. This is one of the main features of the campaign that warrants its continuance, as it brought to light many conditions for which the company was held responsible and which were shown to be otherwise.

In the July issue of the Nation's Business appeared an article "Trade Associations and the Law" by FRANK K. NEBEKER. He discusses the confusion that has occurred over recent Government statements concerning the trade association.

An Attractive Bill-Board Advertisement

THE bill-board advertisement of the Peoples Gas Light and Coke Company shown below is a concrete evidence of the new and progressive merchandising spirit becoming more and more evident in the gas business.

Mr. J. E. Davies, head of the Commercial Department of the Chicago company, has a true conception of the value of high class window and show room displays. His crowded show rooms and enviable record of floor sales show conclusively that if you put the right punch into your advertising and displays the results are sure to follow.

The bill-board advertisement reproduced is painted in three colors and will be changed several times during the year.



Making Your Window Bring Business

YOU would have difficulty in the Sahara, disposing of the best raincoats, and furs are bound to sell slowly in July. Before even planning a layout the man whose display windows really make sales, stops to consider these two questions:—

I. To whom am I trying to sell? .

2. Is this the season when these people will buy?

Why display dainty boudoir lamps and \$50.00 piano portables if the majority of people who pass your window happen to be laboring men living in crowded city quarters? Here is the chance to display articles whose convenience and economy may be emphasized. If your window is on the exclusive street bordering a residential district, then your appeal will be to a public which counts beauty and luxury above all.

Know your audience before you begin to speak.

If you have the advantage of facing a main thoroughfare where all classes and conditions of people pass, you can select your audience from week to week. The street orator attracts people of one type or another according to his form of address and his subject. If you are displaying an industrial appliance, use a background and form of setting that will appeal to the industrial man—make the whole window suggest swift, systematic, economical work. Scrolls, fancy signs and soft draperies will be out of place. A lighting display may be made of the most beautiful lamps or of those which offer the most light for the least money. People see what they are most interested in. Appropriateness takes advantage of this and suits the style and tone of the display to the people it wants to reach.

The second point is but an extension of the first.

If the interests of different people differ, so also the interests of one man change from season to season or from day to day. Seasonableness and timeliness are essential for any advertiser who would attract attention. Not only do certain articles have a winter or a summer appeal, but the same article may be displayed in a "cool" setting or in a "warm" one. People are interested in things or events that they have heard about. The window trimmer who can make a local social event, a victory in baseball or a political issue the starting point of his window story will find people pausing to note what he has to say. Perhaps nothing gives a greater impression of the progressiveness of the gas man than his keeping up with local or national events—holidays, celebrations, news items. First of all, then, any window display must be appropriate, seasonable, timely.

MANUFACTURERS SECTION

GEO. S. BARROWS, Chairman

JOHN S. DEHART, JR., Vice-Chairman

W. W. BARNES, Secretary

MANAGING COMMITTEE - 1921

AR LATE

BARNES, W. W., New York, N. Y.
BARROWS, GRORGE S., Providence, R. I.
BRUCE, HOWARD, Baltimore, Md.
CORROY, J. P., New York, N. Y.
CRANE, WM. M., New York, N. Y.
CRANE, WM. M., New York, N. Y.
GRIBREL, W. GRIFFIIN, Philadelphia, Pa.
KOFFER. W. B., Brooklyn, N. Y.
KRAFF, F. H., Pittsburgh, Pa.
LEMER, F. A., Kalmazoo, Mich.
LOHMEKTER, H. B., New York, N. Y.
LONG, H. J., New Brunswick, N. J.
McDonald, Donald, New York, N. Y.
MUSLAER, ROBERT, Decatur, III.
NORYON, H. A., Boston, Mass.
ROFER, GRORGE D., Rockford, III.
STREWMORD, J. M., New York, N. Y.
STITES, TOWNSEND, Gloucester, N. J.

Representing Affiliated Societies

BABCOEK, C. B., San Francisco, Cal. (Pacific Coast)
BARTLETT, C. E., Philadelphia, Pa. (Pennsylvania)
BREWER, E. D., Atlanta, Ga. (Southern)
CHAPIN, C. H. B., New York, N. Y. (Empire State)
ECCLES, GEO. W., Waltham, Mass. (N. E. Gas Eng.)
GISSON, W. R., Toronto, Can. (Canadian)
KELSEY, L. D., Brookfield, Mo. (Missouri)
KELSEY, I. D., Brookfield, Mo. (Missouri)
MCCULLOUGH, CHAS., Milwaukee, Wis. (Wisconsin)
MILLER, Thos. D., Detroit, Mich. (Illinois)
SEIDENGLANZ, C. H., Dallas, Tex. (So. Central)
SCHALL, H. D., Detroit, Mich. (Michigan)
ROFER, GEORGE D., Rockford, Ill. (Iowa Dist.)
WESTON, J. A., Lansing, Mich. (Indiana)
KELSEY, L., D., Brookfield, Mo. (Missouri)

CHAIRMEN OF SECTION COMMITTEES ORGANIZED TO DATE

Membership—George W. Parker, St. Louis, Mo. Apparatus Makers—D. J. Collins, Philadelphia, Pa. Nomination—H. D. Schalk, Detroit, Mich. Exhibition—W. W. Barres, es-officio, New York, N.Y. Illustrated Lectures—George S. Barrows. Division of Meter Manufacturers—Donald McDonald, Chairman, W. P. Huychinson, Vice-Chairman. Division of Gas Range Manufacturers—Wm. M. Crane, Chairman, I. W. Prefly, Vice-Chairman. Division of Water Heater Manufacturers—H. J. Long, Chairman mivision of Office Labor Saving Devices Manufacturers—H. B. Lohmeyer, Chairman, E. J. Fraris, Vice-Chairman

Division of Heating Appliance Manufacturers—
J. P. Corroy, Chairman
Division of Industrial Appliance
WM. B. KOPFER, Chairman
Division of Lighting Appliance Manufacturers—
Townsknd Stritzs, Chairman
Division of Apparatus & Works Manufacturers—
J. S. Dz.Hart, Jr., Chairman
Division of Supply Manufacturers—R. MUELLER,
Temporary Chairman
Division of Accessories Manufacturers—J. M.
Sherwood, Temporary Chairman

Our prosperity is dependent upon the prosperity of those producing the gas utilized by our appliances—our interests are in common.

1921 Exhibition

The following Manufacturer Company members will be exhibitors at the 1921 Exhibition. The Exhibition Committee will meet August 1st, at which time the Exhibition will be closed in its entirety and notice of allotment of spaces will be sent to exhibitors.

The Exhibition this year will be without exception one of the most interesting in the history of the gas industry, as many exhibitors are preparing exhibits of unusual interest and of a nature different than in former years.

EXHIBITORS - 1921 EXHIBITION Acme Brass Works, Detroit, Mich.
Addressograph Co., Chicago, Ill.
American Meter Co., New York, N. Y.
American Radiator Co., New York, N. Y.
Armstrong Cork Co., Pittsburgh, Pa.
The Baltimore Gas Appliance & Mfg. Co., Baltimore, Md. The G. S. Blodgett Co., Burlington, Vt. Century Stove & Mfg. Co., Johnstown, Pa. Geo. M. Clark & Co. Div., Chicago, Ill. American Stove Co. Chicago Vitreous Enamel Product Co., Cicero,

Claus Automatic Gas Cock Co., Milwaukee,

The Cleveland Heater Co., Cleveland, O. James B. Clow & Sons, Chicago, Ill. Comstock Castle Stove Co., Quincy, Ill. The Crandall Pettee Co., New York, N. Y. Wm. M. Crane Co., New York, N. Y. The Cutler-Hammer Mfg. Co., Milwaukee, Wis.

Wis.
Detroit Stove Works, Detroit, Mich.
S. R. Dresser Mfg. Co., Bradford, Pa.
The Eclipse Stove Co., Mansfield, O.
Equitable Meter Co., Pittsburgh, Pa.
Eriez Stove & Mfg. Co., Erie, Pa.
The Estate Stove Co., Hamilton, O.
The Foxboro Co., Inc., Foxboro, Mass.
General Gas Appliance Co., New York, N. Y.
General Gas Light Co., New York, N. Y.
The J. H. Grayson Mfg. Co., Athens, O.
The Hoffman Heater Co., Lorain, O.
Hugo Manufacturing Co., West Duluth, Minn.
Humphrey Company Div., Kalamazoo, Mich.
The Improved Appliance Co., Brooklyn, N. Y.
Johnson Gas Appliance Co., Cedar Rapids, Ia.
The Kompak Co., New Brunswick, N. J.
The Lovekin Water Heater Co., Philadelphia,
Pa.

Pa.
The Lattimer Stevens Co., Columbus, O.
Malleable Iron Range Co., Beaver Dam, Wis.
D. McDonald & Co., Albany, N. Y.
The Michigan Stove Co., Detroit, Mich.
Milwaukee Gas Specialty Co., Milwaukee, Wis.
National Tube Co., Pittsburgh, Pa.

New Process Stove Co. Div., Clevland, O. American Stove Co.
Ohio State Stove Co., Columbus, O. The Peninsular Stove Co., Detroit, Mich. Pittsburgh Meter Co., Pittsburgh, Pa. Pittsburgh Water Heater Co., Pittsburgh, Pa. Quick Metal Stove Co. Div., St. Louis, Mo. American Stove Co.

Quigley Furnace Specialties Co., New York, N. Y.

Reliable Stove Co. Div., Cleveland, O. American Stove Co. Roberts Brass Mfg. Co., Cleveland, O. Roberts & Mander Stove Co., Philadelphia, Pa. Geo. D. Roper Corp., Rockford, Ill. Ruud Manufacturing Co., Pittsburgh, Pa. The Schaeffer & Budenberg Mfg. Co., Brooklyn, N. Y.

lyn, N. Y.
G. F. Schmidt, Chicago, Ill.
The Scott Gas Appliance Co., Inc., Washington, D. C.

Sprague Meter Co., Bridgeport, Conn. Strause Gas Iron Co., Philadelphia, Pa. Surface Combustion Co., New York, N. Y. Taylor Instrument Companies, Rochester, N. Y. Walker & Pratt Mfg. Co., Boston, Mass. Weir Stove Co., Taunton, Mass. Welsbach Company, Gloucester, N. J. Western Gas Construction Co., Fort Wayne, Ind.

The West Gas Improvement Co. of America, New York, N. Y. A. H. Wolff Gas Radiator Co., New York, N. Y.

The U. G. I. Contracting Co., Philadelphia, Pa.

Use of Seal

THE quick response for the use of the Association Seal by Company members in their periodical advertising is most encouraging, assurance having been received from a great many of our Manufacturer Company members of the use of the seal in their future advertising. This prompt evidence of the membership of manufacturers in the Association which stands for the industry will go far to signify the strength of the Association.

We are pleased to welcome into Manufacturer Company membership Johns-Manville, Inc., New York, N. Y. Gallaher Boiler Co., St. Louis, Mo. Armstrong Cork & Insulation Co., Pittsburgh, Pa.

American Radiator Co., Chicago, Ill. French Battery & Carbon Co., Madison, Wis.

Lambert Meter Co., Inc., Brooklyn, N. Y.

Chicago Vitreous Enamel Product Co., Cicero, Ill.

The Ludlow Valve Mfg. Co., Troy, N. Y.

The Chaplin-Fulton Mfg. Co., Pittsburgh, Pa.

Safety Gas Main Stopper Co., Brooklyn, N. Y.

Malleable Iron Range Co., Beaver Dam, Wis.

Check on Contract Cancelling Urged to Aid Business

Chamber of Commerce Committee Recommends Changes to Curb Evil

ANCELLATION of contracts which spread through the business world like an epidemic last year, tving up \$8,000,000,000 worth of merchandise and driving thousands of manufacturers, importers and exporters into bankruptcy or to the verge of bankruptcy was the chief topic of discussion at the annual meeting of the Chamber of Commerce of the State of New York, May 6th. Charles M. Bernheimer, Chairman of the Committee on Arbitration, said in a report, that if the evil is not checked, national protective legislation will be necessary. For the present the committee advised resort to commercial arbitration under the Walton-Martin Act recently passed.

"A large number of cancellation cases passed through the hands of your committee," says the report. "It is familiar with the disease, and it may therefore be permitted to write a prescription:

"First, it advises the insertion in all written contracts of an agreement to arbitrate future differences arising thereunder; recommends the adoption of standard contracts as exceedingly helpful; urges as a further preventative standard forms of letters of credit as well as of bills of lading; and, advises that where there is a large volume of continuous trading by one group of a community, with a like group in another community,

it is desirable to have a central body or agency located in each group which can examine, verify and dispose of complaints or examine merchandise before shipment.

"Customary trade secrets can easily be Your committee recomsafeguarded. mends greater care in the execution of orders and minute attention, akin to that exercised in former 'buyers' markets,' to all details and requirements in a manufacture and examination of a finished product before shipment, as to packing, shipping and financing. Your committee urges as a further precaution, perhaps more than a preventative than as a cure of the cancellation disease, return to the old-fashioned, tried business maxim: 'Look to whom you sell and from whom you buy.""

As a remedy for the cancellation evil the committee suggests the insertion of the following standard arbitration clause in all contracts.

"Any dispute arising under, out of, or in connection with, or in relation to this contract, shall be submitted to arbitration under the rules for the time being of the Committee on Arbitration of the Chamber of Commerce of the State of New York. The validity, enforcibility and interpretation of any of the clauses of this contract shall be determined and governed by the law of New York."

Dependable Contracts like good credit are our best business currency.

Cancelled Contracts like counterfeit money represent dishonor and loss.

"The Golden Rule is still a good rule"

Perfection of Gas Range Great Event in Household

JULIUS ROSE, of J. Rose & Co., in the New York Tribune, Sunday, June 26, 1921

WHEREVER gas is obtainable— and that is nearly everywhere nowadays—the gas range has taken first place in the kitchen. With the advance in modern conveniences, oven insulation, equipment and sanitary construction there is no method of cooking more efficient for all purposes than gas. Even in remote country districts many householders cook by gas, depending upon shipments of gas in tanks.

As for the big cities, who could imagine them without gas ranges? Try to picture one of our ten-story multiple apartment houses with an old-fashioned coal stove in each apartment and you will realize how revolutionary has been the effect of using gas for cooking. Talk about the servant problem! Bad as it is for most of us, how much worse would it be if we lacked this sanitary and convenient means of obtaining heat at the moment it is needed.

The gas range has not only eliminated the irksome work of carrying and loading fuel, but modern cabinet ranges make it possible for housewives and cooks to watch their viands from a standing position.

The advantages mentioned are of course only the obvious ones. The up-to-date range has gone much farther than merely to improve on the coal stove in these simple respects. To-day, a good gas range is so fully equipped with time-saving and labor-saving appliances that it almost cooks the dinner unattended. At least it allows the mistress of the house for something else the hours formerly spent hovering over a hot stove.

Modern sanitary finishes, or porcelain or porcelain enamel, and polished black surfaces, have made cleaning easy and eliminated blacking altogether. The range, instead of being a cumberous, unattractive object, has become a thing of beauty.

The appearance of the modern gas range responds to the demand of house-wives for cheerful, dainty, alluring kitchens, in contrast to the dull and unsystematic ones of a few years ago. Some of the ranges are of pure white enamel throughout, and add wonderfully to the attractiveness of the kitchen. Others are gray, and black and white; and the finishes are actually burnt into the metal, giving a permanently glossy surface which is very easy to clean.

Rangemakers have exhausted the ingenuity of inventors and designers in their efforts to cut down the gas consumption of their ranges. Better insulated ovens, automatically regulated burners and wide varieties of burner sizes, all have contributed to the fuel economy of the gas range. The better ranges also heat much more quickly than the old style range, which means that less gas is used in attaining the proper baking temperature.

There are many ways in which economy must depend upon the cook. The best range in the world will become clogged up, or will burn an imperfect mixture, unless it is watched and attended to occasionally, and either of these conditions will result in some waste of gas. It is surprising how much you can reduce your

(Continued on page 447)

TECHNICAL SECTION

R. B. HARPER, Chairman

H. R. COOK, Jr., Vice-Chairman H. W. HARTMAN, Secretary

MANAGING COMMITTEE - 1921

At Large

n

CHURB, C. N., Davenport. Iowa
CLARK, JOHN A., Jr., Newark, N. J.
FIRLINRR, A. C., Pittsburgh, Pa.
FORSTALL, WALTON, Philadelphia, Pa.
FULWRILER, W. H., Philadelphia, Pa.
LUHN, C. A., New York, N. Y.
MACREH, G. T., Mt. Vernon, N. Y.
MARENH, G. T., Mt. Vernon, N. Y.
MORHAN, O. E., Chicago, Ill.
SPERR, F. W., Pittsburgh, Pa.
TAUSSIG, J. H., Philadelphia, Pa.
TUTWILER, C. C., West Conshohocken, Pa.
VIRCERT, G. I., SYRGULE, N. Y.
WARNER, A. W., Chester, Pa.
WARNER, A. W., Chester, Pa.
WARNER, F. C., New York, N. Y.
WHITE, PROF. A. H., Ann Arbor, Mich.
WILLIEN, L. J., Boston, Mass.

Representing Affiliated Societies

AUSTIN, E. E., Sumter, S. C. (Southern Gas)
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G. & E.)
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CORNISH, R. C., Philadelphia, Pa. (Pennsylvania)
HART, J. G., Waukegan, Ill. (Illinois)
HUMPHERYS, J. J., Montreal, Canada (Canadian)
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NRAI., GEO. A., Hammond, Ind. (Indiana)
PAIGR, C. E., Worcester, Mass. (N. E. Gas Eng.)
PAFST, H. M., Portland, Ore. (Pacific Coast Gas)
SKOBBERRY, W. H., Marshall, Tex. (South Central)

CHAIRMEN OF SECTION COMMITTEES ORGANIZED TO DATE

Carbonization—J. H. TAUSSIG, Philadelphia, Pa. Cast Iron Pipe Standards—WALTON FORSTALL, Philadelphia, Pa. Chemical—C. A. Lunn, New York, N. Y. Camplete Gasification of Coal—A. W. WARNER, Chester, Pa. Consumers Meters—John A. CLARK, JR., New York, N. Y. Disposal of Waste from Gas Plants—F. W. Sperr, Pitsburch, Pa.

Disposal of Waste from Gas Plants—F. W. SPERR, Pittsburgh, Pa. Electrolysis—CHAS. F. MEYERHERM, New York, N. Y. Gas Coal Specifications—Prof. A. H. White, Ann Arbor. Mich.
Gas Oll—W. H. Fulwrilke, Philadephia, Pa.

Increasing Distribution Capacity—C. N. Chubb, Davenport, Ia.
Refractory Materials—W. H. Fulweiler, Philadelphia, Pa.
Gas Pipe and Meter Deposits—O. A. Mornous, Astoria, N. Y.
Nomenclature—O. E. Norman, Chicago, Ill.
Purification—A. C. Firlinder, Pittsburgh, Pa.

Gas Pipe and Meter Deposits

THE Committee appointed on this subject of which Mr. O. A. Morhous, of the Consolidated Gas Company Laboratories, Astoria, L. I., is Chairman, has been asked to continue the investigations concerning the nature and prevention of deposits in pipes and meters started by the 1919-1920 Committee. At the meeting of the Managing Committee April 25th the Chairman reported good progress in the collection of data and that a letter requesting

further information had been forwarded to some 25 of the larger gas companies of the country.

There are probably few gas companies, large or small, who have not at some time suffered from the effects of such deposits, and the Committee's task of reaching a solution of the problem can be greatly facilitated if all companies will promptly and fully report to Mr. Morhous the results of such experience as they have had on this sub-

ject. The following extract of a letter forwarded by the Committee is indicative of the information desired:

"The Committee feels that a large amount of information can be obtained from various companies, particularly the larger ones, and it is desired that you lend us your support by giving us any information you may have on this subject, or delegate someone in your organization to make a careful study of deposits, if this has not already been accomplished.

"The Committee does not wish to impose any hard and fast rule as to the method to be followed in procuring the necessary informa-tion regarding deposits, as it is believed that individual thought will bring out facts of greater value. The Committee desires all in-formation that is available, but a little information with full data is better than a large amount from which no deductions can be made, Suggestive as to the kind of information of most value would be:

1. Analysis of deposits from gas pipes and meters from different sections of your territory, including deposits from mains, services,

street lamps, etc.

2. Approximate quantity of deposit from

each source and whether taken from high or low pressure systems,

Kinds of gas made and distributed, 4. If two or more kinds of gas are manu-

factured, are they sent out separately or mixed 5. Is the trouble seasonal (if so, between what months), or is the trouble encountered month by month.

6. The Committee is especially desirous to obtain information regarding deposits from localities where only carburetted water gas is used. Do the analyses show the presence of cyanogen and ammonia.
7. Suggestions as to a possible retarding or

prevention of the trouble,

8. Analysis of deposits taken from meters and pipes near gas works is important. 9. Length of time in years, this trouble has

been experienced.

10. State the standard used for gas, candle power or B.t.u.'s.

The moisture content of deposits is im-II. portant.

"Supplementing this information with your opinions, suggestions, or conclusions will be of assistance.

"It is earnestly requested that a reply to this letter be sent to the Chairman at an early date."

(Continued from page 389)

advance notice is required as a precautionary measure, in case of any member desiring to withdraw funds while in need, this requirement has not been put in effect and payment has been made promptly.

The affairs of the Association are managed by a Board of nine Trustees, consisting of the President, the Treasurer and the Assistant Treasurer of the Association and six other members thereof. The Association is now saving at the rate of \$119,600 per year, and after the payment of the insurance premiums from time to time, the deposits are invested in high grade securities.

The expenses of the Association have all been assumed by The United Gas Improvement Company. The cost of the insurance is assumed in its entirety by the members of the Association.

Don't wonder why you never receive your Monthly when you have changed your address and have failed to notify this office.

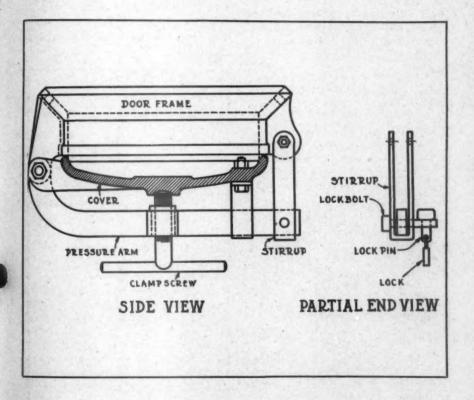
Safety Dust Pocket Door

W. Cullen Morris

THE doors and dump covers on dust pockets, shaving scrubbers and purifiers may be secured by the simple means indicated on the accompanying sketch to prevent unauthorized persons opening them while the operation is in motion.

A hole is drilled through the pressure arm or cotter bar and the stirrup so that a lock-bolt may be inserted. This lockbolt is provided with a slotted hole to take the lock-pin and by snapping a padlock through the hole in the lock-pin the door cannot be opened except by a person holding a key to the lock.

If the clamp screw were released with pressure on the apparatus, the sound and odor of escaping gas would be sufficient warning to the offender before serious damage resulted.



Theoretical Consideration of the Use of Heavy Coke-Bearing Oils for Making Carburetted Water Gas

J. A. PERRY

The articles by Mr. Perry and Mr. Eichengreen are reprinted from recent issues of the U.G.l. Circle. They deal with a subject which was of vital interest to the industry during the critical conditions of oil shortage last Fall and Winter, and which in the judgment of many gas men will again assume paramount importance as soon as the normal demand for petroleum products is revived in the automotive industry and others.

To theorize may be defined: To form or express theories; to speculate. The ideas or theories expressed here are based on past experience and observations in handling regular gas oils and also on recent practical experience and observation with heavy oils giving a large percentage of coke residue.

Heavy Oils:

By heavy oils most gas men mean oils of a specific gravity below about 30° Baume, or, say, .875 gravity at 60° F., regardless of whether or not there is a coke residue on the distillation test. There will usually be little difficulty experienced in handling and securing good operating results with a heavy distillate oil, free of coke on the distillation test. Any oil, however, that deposits a residue which later on forms coke on the carburetter checkerbrick will have a tendency to clog up the interstices, and will therefore cause trouble in securing capacity, good operating conditions and good oil efficiencies. It is with these usually heavy coke bearing, or topped, crude oils that we are especially interested at this time, as a substitute for the straightrun distillate gas oil.

Spacing of Checkerbrick:

A complete discussion by me of the best "spacing of checkerbrick in carburetted water gas apparatus" will be found in the Progressive Age, issues October 1st and November 15th, 1904.

The flame surface of checkerbrick can . be represented by the equation—

$$F = C X \frac{28 X + 45}{(2 X + 5)^2}$$

Where "C" = a constant.

"X" = space between standard 2.5" x 4.5" x 9" brick.

The relation between flame surface and spacing is shown in the accompanying chart, and shows clearly that the dropping off in flame surface by spacing out the brick in the carburetter from our present usual practice of an average of say 3" to as far apart as 6.5" gives only a reduction of 34% in flame surface.

Again the heating effect on the checkerbrick during the blast period and the carburetting effect during the gas-making period are represented by the equation—

$$H = SM \frac{28 X^{2} + 45 X}{(2 X + 5)^{3}}$$

the variable part of which can be represented by-

$$Y = \frac{28X^2 + 45X}{(2X + 5)^3}$$

The values of this variable measure (for the standard 2.5" x 4.5" x 9" brick) of heating and fixing effect "Y", show that the maximum effect is secured with a spacing of 3" to 3.5"; however, the value of "Y," the heating effect, falls off very slowly, so that a spacing out to 6.5" produces up to 87% of the same effect as the best (or 3.09") spacing.

When it comes to actually widening out the spacing of 2.5" x 4.5" x 9" brick, it is seen that a spacing beyond 3.5" and up to 6.5" is difficult to effect in practice. A wide and stable spacing of 6.5" can be secured by always running the courses of brick at right angles, with the bricks in touch end to end in each row,

Probable Effect of Oil Residue on Checkerbrick Work:

Assuming first that the oil giving a coke residue is used on brick spaced about 3" apart, we should expect an adherence of pitchy residue which will distill down to coke during the runs and blows. There should be a tendency for this residue to build out from the sides of the brick, some of it running down to the lower brick with fresh oil and some remaining on the upper brick, gradually building out from the sides and tops until practically the entire interstices at top and perhaps at the bottom of the checkerbrick are filled up with a coke and ash residue.

By widening the spacing out to say 6.5", there will be a greater tendency for the oil to go further towards the bottom of the checkerbrick filling before it strikes sufficient surface to become gasified; also any building out of pitch and coke residue will be less rapid and tend downwards more than sidewards or horizontally. In addition the probability of spots at any part of the checkerbrick closing off will be reduced and the checkerbrick as a whole should keep open more uniformly than with a smaller spacing.

Assuming a coke residue of 4% (A. S.T.M. method) and that one-half of this amount of coke residue is deposited in the checkerbrick, there would be deposited from each gallon of oil weighing 7.5 lbs., 15-hundredths of a pound of coke. Each 1000 cu, ft. of gas made, using 3½ gallons per M, would deposit .5 one-half pound of coke. An 8'6" set with 6'0" internal diameter carburetter, having 7 ft. depth of checkerbrick and spaced 3" apart throughout, would be completely clogged after making approximately 10,800 M of gas, or after six days' use.

Spacing out to 6.5" would increase the volume between brick by about one-third, or theoretically the operation might continue two or three days longer. Due to more uniform filling out of coke in the interstices at the bottom of the brick, 6.5" spacing would probably run twice as long at the 3" spacing.

We can see from the above approximate calculations that, even with wide spacing of checkerbrick (using cokebearing oils), frequent cleaning out and replacement of the carburetter checkerbrick will be necessary.

Also, with the building out and closing up of spaces with coke, we must expect more and more of uneven heating or spotty temperatures and surfaces for gasifying the oil each day the carburetter is in use. There should be a tendency to make pitch and heavy deposits in the washboxes as well as emulsions in the tar separators, due to these uneven heat conditions.

It is necessary, therefore, to adopt some practice that will keep the brick work in as clean and open a condition as possible, not only so the capacities per day may be maintained, but also that good operating and oil results may be secured.

Burning the carbon or coke off the checkerbrick naturally suggests itself. To grasp the problem some calculations should be made. Again assuming an 8'6" set using 31/2 gallons of oil per M and a deposited coke residue on the checkerbrick of 2%, there would be deposited per day 900 lbs. of carbon (1800 M make per day). Suppose we attempt to burn off once a day during a 30-minute cleaning period. It is probable that on the average, even with back blasting and preheating of air by the superheater checkerbrick, from 100% to 200% excess air will be necessary in order to secure sufficient contact with the carbon to burn it off. We would require for 100% excess air about 150 ft. of air per lb. of carbon deposit, or 135,-000 ft. of air for the 30-minute blasting period, or 4500 ft. per minute. 200% excess air the quantity of air per minute would have to be increased by one-half.

With two burning-off periods per day the amount of air might be reduced to say 3000 ft, per minute, By alternating the blast, first from the top of the superheater and out of the top of the carburetter, then from the top of the carburetter and out through the top of the superheater, there would be a tendency to preheat the air and to maintain fairly uniform heats in both the carburetter and superheater, without overheating any portion of the checkerbrick.

It is easily seen that with an oil giving say 6% to 8% coke residue, in order to keep the checkerbrick from clogging up it would be necessary to blast off the carbon with larger quantities of air for longer periods; or what would probably be better practice would be to blast off the carbon two or three times per day with large quantities of air per minute.

Distribution of Oil:

Usually, with good straight run distillate gas oil very little trouble is experienced in securing good oil results, provided suitable heats are carried and the oil distributed over the top of the carburetter brick without any of it reaching the side walls or linings.

With heavier oils depositing the coke, and the wider space of checkerbrick indicated as essential to success, it follows, of course, that to secure uniform conditions care should be given to the distribution of the oil; to prevent too frequent stopping up of the oil sprays by carbon deposit, it will be necessary to deliver the oil in a few comparatively large streams. This suggests delivering the streams of oil so that none of it reaches the side walls of the carburetter for building out of residue or where the brick surface is cold, and also suggests the omission of any direct central

hold or holes in the spray where the oil can dribble or trickle out in excess, but rather the drilling of the holes so as to deliver the oil in spots about 18" apart over the top surface of the checkerbrick. With the wide spacing of the brick, there should be a tendency for a considerable portion of the oil to work down onto the lower courses of brick before it is vaporized. This, besides reducing the deposit on the top courses of brick, should compensate in checkerbrick surface and approximate that usually exposed to the larger number of small streams of oil with a narrower spacing of checkerbrick. With the oil spots sufficiently far apart, there should be, especially with the wider spacing, less tendency for the residue to bridge across the spaces and grow together over a large area. There is also more likelihood that the residue of the oil spots will be more thoroughly distilled out by the hot gases during the run periods and coked during the blast periods.

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In order that the oil should be thoroughly distilled during the run period, and the residue subjected to as long a distillation as possible, it would appear that the oil should be sprayed into the carburetter in a short period of time, say during the first 1½ minutes of the run. Thus during the remainder of the run all heavy residue from the oil remaining on the brick would be subjected to at least two minutes of heat treatment by radiation of heat from the checkerbrick and by the hot blue gases coming over from the generator.

Heavy Oil on the Generator Fire:

With an oil giving a large amount of coke residue the natural suggestion is to use the oil on the generator fire,

where the deposit can later on be coked and burned as generator fuel. Some processes of gas making are still in use where the gas oil is sprayed on the fire, the amount of generator fuel used per M remaining normal.

Oil delivered on a generator fire may be considered as vaporized and distilled by actual contact with the hot fuel, by radiation of heat from the hot fuel, by radiation of heat from the blue gases, and by contact of hot blue gases with the oil. Any cracking up of the oil or vapors will, of necessity, take place by actual contact with the incandescent fuel, or by contact of the vapors with hot checkerbrick after they are carried over to the carburetter by the blue gases.

If the oil is distributed so that it will penetrate into the fuel bed, that portion running down into the fuel bed should be subjected to vaporization and cracking up of vapors as they are formed. The hot blue gas and excess steam coming up from the lower part of the fuel bed should, owing to their high temperature and large quantity, be of great help in vaporizing the oil, as well as forcing the oil vapors into contact with the incandescent fuel.

Oil Distribution:

It would appear that oil uniformly distributed over the surface of the fire would give good results. However, it should be borne in mind that if the residue is heavy there would be a tendency for the residue to run together and to seal-off the top of the fuel bed, making blasting difficult and also tending to further cool the top of the fuel bed.

With the oil delivered in spots about 18" apart, it would appear that a considerable amount of oil would naturally run down into the body of the fire for distillation, and also for cracking of the oil vapors, where the vapors as formed would be subjected to being carried out by the blue gases and swept against the incandescent fuel. This delivery of the oil on spots would also prevent the sealing off of the entire area with residue, and with the blue gases and blast gases coming up around the spots the residue would be subjected to a thorough distillation and coking.

Bearing in mind that a large percentage of both the blast gases and blue gases come up the 12" to 16" outer annular space of the generator fire area, the oil should be delivered therefore in spots 12" to 18" apart in this annular space, say with no spots further than 16" from the generator side walls and closer to the side walls if necessary.

Coking off of Residue:

With the oil delivered on an anthracite coal fire there is greater probability that the oil will run off easier and penetrate deeper into the fuel bed than will be the case with a coke fire. To keep the top outer circumference of the fire always hot for vaporizing the oil, and also to coke any oil residue left during the blow period, it would appear that a secondary generator blast should be installed at or near the top of the generator fire, with sufficient air openings through the brick work—say not over 18" apart—to permit the top blasting of this part of the fuel bed.

Time of Oil Admission:

In order that the oil may penetrate into the fuel bed, and also that the residue may be subjected to as long a period of distillation as possible—the oil should be sprayed in as quickly as possible—say in the first minute of the up run—thus subjecting the residue to at least a minute or a minute-and-a-half of further up run before the down part of a split run begins, the set conditions being balanced by using, if necessary, a larger percentage of steam on the shorter portion of the down run.

Heat Conditions on Carburetter:

While a considerable amount of the heavy part of the oil that runs down into the fire will probably be cracked and fixed, there should be a large amount of oil vapors carried over into the carburetter for cracking and fixing. With the work of vaporization taken off the carburetter brick, it would appear that the temperatures carried in the carburetter and superheater for good operating results will necessarily be lower than if the oil were sprayed into the carburetter.

Choice of Method:

With the process of blasting off of the carburetter brick satisfactorily developed, it would appear that the extra work thrown on the generator fire would require, for the oil on the generator process, extra generator fuel at least equal to the difference between that required to gasify the oil and the fuel residue deposited by the oil.

If the approximate heat units required to gasify, superheat and fix a gallon of oil are 9000, and two-thirds of this be done by the generator fuel, and one-third by the blue gases, then to gasify 3½ gallon of oil per M requires from the generator fuel 20,000 B.t.u. or with two-thirds fuel utilization in the generator, and 13,500 B.t.u. per lb. of generator fuel, there would be required 2.2 lbs. of generator fuel per M of gas

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Theoretically it should be possible by properly balancing the primary blast on the generator and the steam, and by using the secondary blast at the top of the generator for a minimum amount of time, say during the very last part of the blow period, to keep the top of the generator fire hot without very much, if any, more fuel being used per M than if the oil were used on the carburetter. Considerable experience and practice would be required to adjust and work out the best balanced conditions for handling oil on the generator fire.

At any rate, it is probable that the entire coke residue as obtained by the A. S. T. M. method, or its equivalent, would be deposited in the top of the generator fire from the oil used, and this coke residue could be balanced against any extra generator fuel that might be used for maintaining suitable temperature conditions at the top of the fire. It is probable that the coke deposited in the carburetter does not help in the amount of gas' made, and while there might be some readjustment of the generator fire conditions so that if the coke were blasted off at the end of each blow there would be some reduction in generator fuel, in actual practice we should count the coke residue in the carburetter as an entire loss, none of it being of any particular value for heating the checkerbrick, or for gas making.

Assuming, however, that all of the coke residue as determined by the A. S. T. M. method is deposited on or in the generator fire, and which can be subsequently used as generator fuel, an oil of 1% coke residue would deposit on the fire approximately .25 of a pound of coke per M of gas, or say an equivalent of .3 of a pound of generator fuel, when using 31/3 gallons of oil per M. To offset an equivalent of 2.2 lbs, of generator fuel, which might possibly be used for vaporizing and partially gasifying the oil in the generator as previously calculated, the coke residue would have to amount to 2.2 lbs. divided by .3 of a pound, or 7%, before we could expect any particular advantage by handling the oil on the generator fire as compared with using it on the carburetter checkerbrick and successfully blasting the coke residue off the brick.

It would appear therefore that with ordinary topped crude oils, the blasting off process, using the oil on the carburetter brick, will prove the most economical, satisfactory and successful. . It is probable, if the use of topped crude oils becomes general, that, for oils somewhere above 5% coke residue, it will pay to try out the generator fire method over a considerable period of time, until experience gives the best economy that can be obtained by this method, after which a better decision could be made as to just when and where the generator fire method should be adopted, if at all.

[&]quot;As a rule," said Disraeli, "the most successful man in life is the man who has the most information."

Details of Experiments

L. B. EICHENGREEN

THE oil used was a heavy Mexican reduced crude — specific gravity .9490 at 77° = approximately 17° Baume—and gave a coke residue of 11.5% (A. S. T. M. method), and a sulphur content of 3.5%.

Previous experiments made some years ago, using a heavy Mexican crude oil on the fire of a single generator set, and also in the carburetter, indicated that such heavy oils could not be successfully used on our standard carburetted water gas set.

The principal experiments were made at the Experimental Plant, Station "A" Works of the Philadelphia Gas Works. The generating plant consists of a standard 6'o" set equipped with an extra 6'o" generator, so arranged that it can be operated in parallel with the standard generator, delivering its gas to the top of the 6'o" carburetter; or if desired, the extra generator can be entirely disconnected from the set.

Owing to previous experiments showing failure to satisfactorily handle a heavy oil on the generator fire, the extra generator was connected up and put into use, and the blast and steam regulated to obtain the best conditions for handling the oil, at the same time making blue gas on the regular generator and mixing the oil gas and blue gas in the carburetter.

After operating for several days we found that the most important points were the distribution of oil and the temperature at the top of the fire. It was found necessary to inject the oil on the outer edge of the fire with absolutely

no oil injected in the center. Also it was necessary to keep the top of the fire very hot and inject the oil as quickly as possible in order to give the residue in oil sufficient time to distill off.

The next step was to disconnect the extra generator and to use the oil on the standard single generator, which had been equipped with a secondary blast for keeping the top of the fire hot. After operating for some little time it was found that the heavy coke-bearing oil could be injected on the top of the fire, this oil being injected in about one and one-quarter minutes of the first part of the run, which was up. Also the oil was injected through a special oil spray drilled with 3" holes, which sprayed the oil at the extreme outer edges of the generator fire. Regular split runs were used, and the four-minute run was split as follows: Up run, two minutes and fifteen seconds; down run, one minute and thirty-five seconds; up run, ten seconds.

By injecting the oil in one and onequarter minutes, this gave a one-minute purge on the up run before the hot valves were reversed, so that no trouble was experienced from lampblack made by the oil being driven through the fire.

After experimenting with different heats at the base of the superheater, it was found that the range of temperature for handling this oil was very narrow. If too high heats were carried a heavy pitch was made.

The efficiencies obtained with the use of the Mexican reduced crude oil on the

generator fire averaged 90,000 B.t.u. per gallon of oil. Very little attention was paid to generator fuel results, as our object was to be able to handle the oil successfully, but it would appear probable that with experience and further practice, normal generator fuel results could be obtained.

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After successfully handling the heavy oil on the generator fire, we decided to try to use it on the carburetter of a standard set. We therefore spaced the checkerbrick in the carburetter 6.5" apart, and installed a blast connection for blasting out the carbon which would accumulate on and between checkerbrick. The oil spray used was of a similar type to that used on the generator fire, in that it was drilled with A" holes, and the oil was sprayed away from the middle of the carburetter, but not touching the walls. The oil was injected in one and one-quarter minutes, this being the only deviation from operation with the ordinary gas oil.

. The carburetter was burned or blasted off during each fire cleaning period, which was every eight hours, the carburetter being blasted for forty minutes. The method of blasting was to blow up through the carburetter and out through the generator coaling door, with the stack valve closed. After bushing this way for a time, the bottom blast was closed, the top hot valve was dropped, the stack valve was opened, and the regular carburetter blast valve This reversed the blasting opened. down through the carburetter. These reversals were made several times during the blasting period, in order to keep the brick from overheating,

The carburetter was opened up for inspection every two or three days and after about 21,000 gallons of heavy oil had been used (equal to 6.5 days, continual use, 800 M per day and 4 gals. per M), the bricks were found to be in very good condition, open throughout and practically free of coke deposit. The condition of the checkerbrick was such that this practice could have been continued with the heavy oil probably until the set had operated the equivalent of 20 to 25 days, before it would have been necessary to rechecker.

We found with the wide spacing that there was a coke deposit on the bottom of the carburetter. This deposit was small and easily removed, and did not appear to affect the oil efficiencies. When using the heavy oil in the carburetter we obtained about the same efficiency as with the oil in the generator; that is, 90,000 B.t.u. per gallon.

During the burning out period analyses of gases on the up blow were taken through the top carburetter sight cock, and the percentage of CO₂, O₂ and CO determined. It was found that the oxygen united with the carbon and a high percentage of CO₂ was obtained during the first part of the blasting off period, while at the end of the blasting off period (up blows) the percentage of CO₂ was very materially decreased, with the presence of a large excess of oxygen or air.

It is important to supply an excessive amount of air, so that the carbon is burned in every part of the carburetter. If insufficient air is supplied, there may be places where the carbon deposit is not burned off, and these deposits will

build up, leaving some parts of the carburetter partially or entirely closed off and ineffective for properly gasifying the oil.

Also in the use of the heavy oil on the carburetter the heats shown by the pyrometer installed in the base of the superheater are very important, and if too high heats are carried a pitchy material is formed.

We found that this oil could not be pumped at ordinary temperatures, and it was necessary to heat it to about 120° in order to handle it.

The calculations made from the analyses of the gases during the burning off period showed that about 43% of the total coke put into the carburetter with the oil was burned out with the blast, and that about 5% of the total coke injected remained on the bottom of the carburetter, so that of the total coke put into the carburetter about one-half was accounted for.

This same grade of oil was used successfully on the generator fire of an 8' 6" generator at Harrisburg, and at Baltimore on a 12' 0" generator we used a somewhat heavier oil, showing a gravity of about 16° Baume.

Lately we have been receiving at Gloversville an oil of about 28° Baume, containing between 2% and 3% by weight of coke, determined by the A. S. T. M. method. Some trouble was experienced in handling this oil. A very heavy emulsion was formed in the seal pots and separator, and the carburetter with ordinary checkering became plugged up, and after several days' operation the oil results became poor. We

checkered one of the 6' o" sets with 6.5° spacing in the carburetter, and 2.5" and 2.25" regulation spacing in the superheater. After several days we found that with 1300° to 1320° heats at the bottom of the superheater, no emulsion was formed, and that a good grade of tar was being made. These heats were from 80° to 100° less than had been carried with the regular checkering.

The formation of pitchy material and emulsion was probably due to the carburetter becoming plugged up in spots. Consequently some of the oil reached the cold portions and was not gasified, and the tendency then was to raise the heats, causing lampblack and pitch to be formed in the open channels where the heats were too high. By widening out the checkerbrick spacing and completely burning off the carbon, the spotty condition was done away with and lower temperatures could be carried and all the oil completely gasified.

At Gloversville there is a waste-heat boiler, and we have a tertiary air blast at the top of the superheater. This blast was used for burning out the carburetter brick, and the burning was done once a day, as with the small percentage of coke content in the oil this was found to be all that was necessary. The burning out method was the same as that used at the Experimental Plant, except that the air was down through the superheater, then up through the carburetter and out the generator coaling door, with the stack valve closed. The process was then reversed, using the carburetter blast to blow down through the carburetter and up through the superheater, and out the waste heat boiler stack.

Two analyses taken on different days of the gases at the top of the carburetter, when making an up blow, are given below:

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	TIME		
First Test-		CO ₂	0,
15 min. after	Start of blow start of blow End of blow	12.0% 10.4 6.2	7.8% 9.2 14.2
Second Test-			
as min after	Start of blow start of blow	8.4%	9.6%
15 mine after	End of blow	5.4 3.6	15.2

At Gloversville we have a high-speed, high-pressure blower, giving 40" pressure at the outlet. The blast valves are 8" and 10" and were opened wide when blasting. It is seen from the amounts of CO₂ and O₃ obtained that an excess of 100% to 300% of air was used, making the average air during the blow about 200% in excess of that required in ordinary practice to burn a pound of carbon to CO₂. It would appear that this large amount of excess air is necessary if the checkerbrick is to be kept open and free of coke deposit.

With the large amount of air available at Gloversville, it was found that in blowing back through the top of the superheater, the top heats came down very rapidly from about 1250° to about 400° on the down blast. With the reversals of the blasting, at the end of the burning out period the top heats were about 700°. These heats, however, came up very rapidly, and after two runs had been made were again up to normal. During these first two runs after the burning out period, the oil was cut back in the same manner as would be the case in starting up a set after cleaning the generator fire.

We have figured out the amounts of

air necessary with different sizes of water-gas machines when using oil containing 4% coke (A. S. T. M. method) thoroughly to burn out the carbon deposited on the carburetter brick, assuming that only one-half this possible coke residue is deposited on the brick.

The accompanying table is given in order to give some idea of the amounts of air required in the burning out process.

Of course, the carburetter should be burned out until practically no CO₂ is coming off, but in practice we have found that if the carburetter is burned down until between 3% and 4% CO₂ remains in the gases, the carburetter brick will be uniformly open and in good condition.

The ordinary oil spray can be used with oils having a gravity of 28° Baume and containing between 2% and 3% coke, but the distribution of these sprays should be carefully checked so that no oil is thrown to the side walls of the carburetter, as the coke will start to build up on the side walls and will be found difficult to burn off, and, of course, will affect the oil efficiencies.

In the burning out process it is necessary that the hot valves be tight, in order to isolate the generator from the carburetter and superheater, as otherwise the blast will leak through into the generator, heat up the fire, and consume generator fuel. Also it would not be possible to clean the generator fire if there were leaky hot valves.

Where possible the blast, instead of coming out the generator coaling door, should be taken off the top of the carburetter through large connections and a special stack valve. This will keep the top of the generator from becoming overheated, as well as deliver the products of combustion out of the generator house.

I think it would pay us to burn out

the carburetters in our plants, even when using oil containing a very small percentage of coke, as the burning out process will tend to keep the carburetter brick clean and allow a longer running period before the brick has to be removed.

Size of Set	Nominal Capacity	Oil Per Day 3.3 Gals, per M	Pounds Coke Per Day 2% Coke Res, on Brick	Air Per Mii 30-Min. Bla: Period 100% Excess Air on Average	st	Air Per Min. 30-Min, Blast Period 200% Excess Air on Average
5'0"	400	1320	198	1000 cu. ft.		1500 cu. ft.
6'0"	800	2640	396	2000 " "		. 3000 " "
7'6"	1400	4620	693	3465 " "		5198 " "
8'6"	1800	6000	900	4500 " "		6750 " "
10'6"	3000	9900	1485	7425 " "		10138 " "
11'0"	3500	11500	1725	8625 " "		12938 " "

Supplementary List of Approved Castings

The following resolution was approved by the Managing Committee, Technical Section, at their meeting April 25th, 1921:

"The Committee on Cast Iron Pipe Standards recommends to the Managing Committee of the Technical Section, the adoption of the accompanying drawing of a 16' x 12' bushing as an approved drawing of such special casting; that such approved drawing form part of a "Supplementary List of Approved Castings" for gas work, and be furnished, through the Committee on Pipe Standards, to the pipe founders. Also, that the fact of such approval be published in the Association Monthly.

WALTON FORSTALL, Chairman Committee on Cast Iron Pipe Standards." It will not be necessary for members to secure a copy of the drawing above referred to, but to bring their records upto-date the following line of dimensions should be added to the table of dimensions on page 20 of the Standard Specifications for Cast Iron Pipe and Specifications under the appropriate headings noted below:

Nominal Diameter										Approximate Weight in
Inches	A	В	C	Н	T	T,	T,	T.	T.	Pounds
16 x 12	17.5	17.3	14.2	5.0	.62	-	.72	-	1.0	05

Recent Articles in Chemical Press of Interest to Gas Men

Contributed by Sub-Committee on Abstracts* of the Chemical Committee

EXPERIMENTS IN COMPLETE GASIFICATION AT HARROGATE (ENGLAND). By F. H. Robinson. Gas World, Vol. 74, No. 1920, pp. 368-371 (May 7, 1921). Author describes construction of plant, gives cost of erecting, methods of working and results of tests. (K. C. Walker.)

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- THE CORROSION OF COKE OVEN WALLS, By A. E. Findley. Gas World, Vol. 74, No. 1920, pp. 46-47 (May 7, 1921). Ingredients producing the most harmful effect were found to be salt, iron and moisture. (K. C. Walker.)
- FUEL EFFICIENCY WITH SPECIAL REFERENCE TO COKE. Gas World, Vol. 74, No. 1921, pp. 390-391 (May 14, 1921). A plea for a greater utilization of coal, not primarily as a fuel, but as a source of important byproducts and then as fuel. Claims a great waste of coking coal. Defects of coal as fuel. Special emphasis is laid on coke as a better class of fuel, Discussion. (K, C, Walker.)
- New Method for Measuring Rates of Flow of Gases, Joseph Erlich. Ann. Chem. Anal. Chem. Appl. 2, 289-97 (1920). Abstracted in Am. Chem. Society Abstracts, Jan. 10, 1921, page I. A description of a glass manometer tube containing gas saturated oil or water, suitable for rates of flow 40 and 150 liters per hour. (E. C. Uhlig.)
- A New Laboratory Apparatus for Mixing Small Quantities of a Gas with Other Gases in Constant Proportions. Robert Metzger. Chem. Ztg. 44, 658-9 (1920). Abstracted in Am. Chemical Society Abstracts, Jan. 10, 1921, page 2. Designed for mixing NH, with illuminating gas. The apparatus consists of a flask heated on a mercury bath by means of a Bunsen burner with a pilot flame. Ammonia is produced by heating a mixture of 3 parts moist Ca (OH)2 and 1 part NH. CI and passes to the illuminating gas. The rate at which the NH, evolves depends on the temperature of the bath, which is closely regulated by pressure on Hg in an attached U-tube. (E. C. Uhlig.)
- Bruminous Storage Practice—Stoeck, Hippard & Langtry, Univ. Ills. Bull. 17, No. 21, 157 pp. (1920). Abstracted in Am.

- Chem. Soc. Abstracts, Jan. 10, 1921, p. 158. An exhaustive treatment of the subject based on data obtained from
- A questionnaire sent to 200 railroads, coke plants, etc.
- A similar questionnaire returned by 300 power plants in Illinois.
 A study of fires in coal piles in Chicago
- 3. A study of fires in coal piles in Chicago and other cities.
- 4. Various authorities in this fluid. (E. C. Uhlig.)
- Physical Characteristics of Refractories. I. Spalling losses. II. Cold and hot abrasion tests. M. I., Hartman and O. A. Hougest. Trans. Am. Electrochem. Soc. 36, reprint (1920): cf. C.A. 14, 2246.
 - I. Comparative tests were made on 12 different kinds of refractory bricks purchased in the open market, exposed to rapid cooling, in an air blast, from a temperature of 1350°. Three of these kinds were completely disintegrated at the 7th, 4th and 3rd treatment. The others were treated to times. The three bonded carborundum varieties showed the least spalling (unler 8%O). Chrome brick was all gone after the 7th test, silica after the 4th, and magnesia after the third.
 - II. A carborundum cutting wheel was used for the hot and cold abrasion tests and the abrasion in a given time, under equal pressures noted. Again the bonded carborundum gave the best results. In discussion, it was brought out that this test was probably very much affected by differences in heat cond. (E. C. Uhlig.)
- A New Micro Combustion Furnace for the Determination of Carbon, Hydrogen and Nitrogen, W. Dautwitz. Zurich Chem. Ztg. 44, 963 (1920). Description, with 2 poor cuts, of a furnace which, with absorbers attached, may be clamped to a table. (E. C. Uhlig.)
- Constitution and Properties of Boiler Tubes.

 A. E. White. Mech. Eng. 42, 603-6 (1920).

 The causes of tube failure are due to tube brittleness resulting from the absorption of H. by the metal and usually attributable to faulty boiler-feedwater treatment, to blowholes or other imperfections in the metal, and to recrystn, of the metal. These causes are discussed and supplemented with photomicrographs. The grain growth un-

Abstractors' names appear in brackets following each item.

der temps, below the critical point is an important factor. It is thought that a C content varying between 0,30 and 0,35% will insure longer life for the tube and safer boiler operation than a C content between 0.08 and 0.18%. (E. C. Uhlig.)

- CARBONIZATION OF LUBRICATING OILS, Anon.
 Bur. Standards, Circ. No. 99, 44 pp. (1920).
 The nature and properties of the deposits formed in internal-combustion engines have been the subject of controversy, which is briefly reviewed. (E. C. Uhlig.)
- WATER PURIFICATION FOR BOILER FEED. F. J. Corlius. Power Plant Engr. 24, 1063-1121 (1920). A full discussion of the usual properties of characteristic combinations found in boiler feed waters is given. Permutite, lime-soda, and hot-process treatment—are briefly described. Possibilities of compound treatment are mentioned. C. recommends frequent tests of water from the boilers to determine the internal conditions in properly adjusting whatever treatment is applied. (E. C. Uhlig.)
- ANALYZING OF COAL BY THE BUREAU OF MINES. F. G. Cottrell. Elec. Rev. 78, 75 (1921). Brief outline of the work of the bureau and suggestions for better and more economical utilization of coal. (E. C. Uhlig.)
- A MULTIPLE BOMB CALORIMETER FOR COAL, TESTING, S. B. Bilbrough. J. S. African Ass. Anal. Chem. 3, 4-5 (1920). Six Calorimeters are observed simultaneously. The readings for 6 can all be made in the time occupied by a detn. so that time is saved and the work is more interesting. (E. C. Uhlig.)
- CALORIFIC VALUE AND THE EFFICIENCY OF GAS BURNERS. J. H. Dawe. Illuminating Engineer (London) 13, 252 (1920). Some of the results of using low-grade gas are discussed. A series of photographs showing the effect on mantles supplied respectively with gas of 290, 468 and 635 B.t.u. indicated that the illumination with incandescent mantles was the same; with flat flames, the flame was much smaller and less luminous with the low-grade gas. The new condition involving use of low-grade gas will favor the use of incandescent burners to the exclusion of flat-flame. (E. C. Uhlig.)
- Tests of Carbon Monoxide Detector in Mines. D. Harrington and B. W. Dyer. Bur. of Mines Rept. of Investigations No. 2207 (1921). A simple compact device has been developed for the rapid detection of small, though dangerous quantities of CO in mines. A sample of the air mixture is drawn into a small rubber bulb, and forced

- through a glass tube filled with chemicals which change in color from gray or white to shades of green according to the CO content. A color scale is attached for comparison and determination of CO percentages. Comparative data show results accurate for concentrations of 0.1% and greater. (E. C. Uhlig.)
- ESTIMATION OF SULPHUR BY THE LAIP METHON. F. Esling. Chem. Age (London) 3, 684-5 (1920). A weighed amount of oil either by itself or dissolved in a suitable solvent, is burned in a lamp, the products of combustion are passed into a measured vol. of standard Na2CO3 soln. and the excess of alkali is detd, by titration with standard acid. (E. C. Uhlig.)
- COMPARATIVE TESTS OF LUBRICATING OILA Anon. Shale Review 2, No. 8, 25 (1920). Comparative tests made at the Univ. of Colo. by A. J. Hunter, showed that shale oil had better lubricating qualities than products from refined natural petroleum (E. C. Uhlig.)
- METHODS OF EXAMINATION OF LUBRICATING OILS, G. F. Robertshaw. J. Ind. Petroleum Tech. 6, 324-78 (1920); cf. C.A. 14, 2078, 2547. A detail-drawing and description of the Mitchell viscosimeter are included. (E. C. Uhlig.)
- QUANTITY OF COAL IN A NATURAL CONICAL PILE. W. F. Schaphorst. Elec. Rev. 78, 234 (1921). A chart is given by which the size of plot required for a certain tonnage or the tonnage for the dimensions of the conical pile of bituminous coal can be determined, (E. C. Uhlig.)
- DETERMINATION OF SULFUR IN THE PRODUCTS FROM WASHING ILLUMINATING GAS. K. J. Leander. Svensk. Kem. Tidskrift, 32, 184-185 (1920). The method used at the plant is that published in Straches' Handbuch Gasbeleuchtung and Gasindustrie. This method gives results that are 5% too low owing to the presence of FeS. To overcome this L. oxidizes the sample with concd. HNO3, and KClO3 removes the Fe by pptn. with NH₂OH and then ppts. the S. as BaSO. (E. C. Uhlig.)
- WORKS STANDARDIZATION OF PYROMETERS. R. Gates, J. Inst. Elec. Eng. (London) 57, 317-21 (1920). (E. C. Uhlig.)
- Boller Feed Water Purification. Anon.

 Blast Furnace and Steel Plant. 9, 128-9
 (1921). A description of the new watersoftening plant of the Am. Coke and Chem.
 Co. of Granite City Ill., is given. The
 water is first supplied to the cooling and

condensing equipment, where it attains a temperature of about 100° F. The equipment consists of two reaction settling tanks (34 ft. x.25 ft. 4 in.) which are used alternately in the treatment of the water. The tanks are fitted with stirring devices, which are stopped when the tanks are filled, and after the ppts. have settled the softened water is passed through filter beds of crushed quartz. The hardness is reduced from 15 to 1½ grains per gal. (E, C, Uhlig.)

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MIXED COAL EXPERIMENTS. Wm. C. Butterworth. Gas Record 19, No. 5, 11-3 (1921). The Platteville, Wis., Gas Co. has been conducting experiments during the past 7 months on mixing various coals for gas making. Run-of-dock, No. 6 Illinois seam, No. 3 Pocahontas and Upper Elkhorn seam, have thus far been used in varying proportions. The quality of the domestic coke has been improved and at the same time coal costs have been reduced. The work is still under way.

ANALYZING RECORDS OF CARBON DIOXIDE AND COMBUSTIBLE GASES. Anon. Elec. World 77, 654 (1921); 1 illus. The chart shown emphasizes the importance of keeping continuous records of combustible gases present in the flue.

Percentage of Carbon Dioxide Is Not Final.
Test of Good Combustion. O. Rodhe.
Elec. World 77, 420 (1921). Dependence
on CO2 records alone is misleading, for
while low CO2 generally indicates excess
of air, it may indicate poor mixture of the
air. Insufficient air supply causes the
presence of CO in the stack, but other influences include poor furnace design, improper firing methods, the use of the wrong
quality of coal for the equipment, poor
mixture of the combustible gases and air,
and low furnace temperature, whereby the
gases are cooled below the ignition point
before combustion is complete. (E. C.
Uhlig.)

Kinds of Chimney Losses and Their Relative Importance. O. Rodhe. Elec. World, 77, 544 (1921). Heat losses in chimneys are either sensible heat of the flue gases or the heat represented in chem. energy in unconsumed combustible gases. Curves show flue losses with varying amounts of CO_b. At the critical point combustion takes place with the greatest economy in fuel consumption. (E. C. Uhlig.)

RECENT ADVANCES IN LOW-TEMPERATURE CAR-BONIZATION, H. L. Armstrong. Iron & Coal Trade Rev. 102, 156 (1921). From a cost comparison of low-temp, and hightemp, carbonization in coke ovens and gas works. Armstrong concludes that (1) Whatever the prices, an enormous gain is obtained by carbonizing; the value of the products in a process shows considerably better economic results than high temp, in either ovens or gas works. Cf. C. A. 15, 746. (E. C. Uhlig.)

USE OF BITUMINOUS COAL AS WATER-GAS GENERATOR FUEL. W. W. Odell. Bur. Mines, Rept. of Investigations, No. 2183 (1920). Coke has long been recognized as a more desirable fuel than bituminous coal in water-gas app., but considerable progress had been made in the use of the latter as a substitute for coke. The average value of the blue gas from coke is 300 B.t.u. per cu. ft. whereas that from coal is 335 B.t.u. Also, the vol. and quality of the blast gas are appreciably greater with the latter. The advantages are:

(1) Carburetted gas can be made from coal cheaper than from coke owing to the fact that, though slightly more generator fuel is used per 1000 cu. ft. of gas produced, the difference in the prices of coal is great enough to offset it; (2) a still greater economy can be realized when a properly designed waste-heat boiler with suitable combustion chamber is provided to utilize the larger quantity of blast gas. (E. C. Uhlig.)

ECONOMY IN GAS OIL IN CARBURATION OF WATER GAS, Brender A. Brandis and J. W. H. Uyttenbogaart. Het. Gas, Aug. 1, 1920, 143; J. Usines a Gas 45, 21-2 (1921). Experiments were made in connection with a Humphreys and Glasgow water-gas plant to determine the most favorable relation between the water gas and the oil and the most advantageous way of introducing the oil.

Properties of Typical Crude Oils from the Eastern Producing Field of the U.S. E. W. Dean. Bur. Mines, Rept. of Investigations, 1921, No. 2202, 57 pp. The preliminary report includes data showing the properties of 35 typical crude petroleum samples from the states of N. Y., Penna., W. Va., Ky., Ohio, Ind. and Ill, including for comparison a few samples from several other states. Suggestions and constructive criticism are invited.

THE DANGERS OF OIL FUEL, Anon. Chem. Age (London) 3, 464-5 (1920). This is an editorial review of the report of the Committee of the Board of Trade (Cmd. 944) appointed to inquire into means for preventing fire.

Associations Affiliated with A.G.A.

Canadian Gas Association

Date of Affiliation—Mar. 25, 1919
Pres.—C. S. Bagg, Montreal
Sec.-Tr.—G. W. Allen, Consumer's Gas Co., Toronto
Conv., Aug. 25 and 26, 1921, Montreal

Empire State Gas & Electric Association

Date of Affiliation—Nov. 21, 1919
Pres.—H. W. Peck, Adirondack Pr. & I.t. Corpn.,
Schenectady, N. Y.
Sec.—C. H. B. Chapin, Grand Central Terminal, New
York, N. Y.

Illinois Gas Association

Date of Affiliation—Mar. 19, 1919
Pres.—H. H. Clark, 325 Peoples Gas Bldg., Chicago,
Ill.
Sec.-Tr.—R. V. Prather, DeWitt-Smith Building,
Springfield, Ill.
Conv., 1922

Indiana Gas Association

Date of Affiliation—Apr. 24, 1919
Pres.—Morse Dell Plain, No. Indiana Gas & Elec. Co., Hammond, Ind.
Sec.-Tr.—E. J. Burke, Citizens Gas Co., Indianapolis, Ind.
Conv., 1922

Iowa District Gas Association

Date of Affiliation—May 21, 1919
Pres.—C. N. Chubb, United Light & Rwys. Co.,
Davenport, Ia.
Sec.-Tr.—H. R. Sterrett, Des Moines Gas Co., Des
Moines, Ia.
Conv., 1920.

Michigan Gas Association

Date of Affiliation—Sept. 18, 1919
Pres.—J. W. Batten, Detroit City Gas Co., Detroit,
Mich.
Sec.-Tr.—A. G. Schroeder, Grand Rapids Gas Light
Co., Grand Rapids, Mich.
Conv., 1921

Missouri Association of Public Utilities

Date of Affiliation—June 18, 1920
Pres.—H. Spochrer, Union Elec. Lt. & Pr. Co., St. Louis, Mo.
Sec.-Tr.—F. D. Beardslee, 315 N. 12th Street, St. Usils, Mo.
Wiley F. Corl, Chmn. Affiliation Com., Missouri Utilities Co., Mexico, Mo.
Conv., 1922

New England Association of Gas Engineers

Date of Affiliation—Feb. 19, 1919
Pres.—Burton Smart, Portland Gas Lt. Co., Portland Gas Lt. Co., Portland Sec.-Tr.—J. L. Tudbury, Salem Gas Light Co., Salem, Mass.
Conv., 1922

Gas Sales Association of New England

Date of Affiliation—Oct. 1, 1919 Gov.—H. J. Pettengill, Jr., Blackstone Valley Gas & Electric Co., Pawtucket, R. I. Sec.—M. Bernard Webber, 67 Milk St., Boston, Mass. Annual Meeting, 1922

New Jersey State Gas Association

Date of Affiliation—April 25, 1919
Pres.—H. H. Newman, Public Service Gas Co., Trenton, N. J.
Sec.-Tr.—H. E. Mason, Consolidated Gas Co. of N. J.
Long Branch, N. J.
Conv., 1922.

Pacific Coast Gas Association

Date of Affiliation—Sept. 18, 1919
Pres.—W. M. Kapus, Northwest Gas & Elec. Equipment Co., Portlánd, Ore.
Sec.-Tr.—W. M. Henderson, 445 Sutter St., San Francisco, Cal.
Conv., Sept. 20-23, 1921, Del Monte, Cal.

Pennsylvania Gas Association

Date of Affiliation—April 10, 1919
Pres.—E. L. Smith, Towanda Gas Co., Towanda, Pa.
Sec.-Tr.—Geo. L. Cullen, Harrisburg Gas Co., Harrisburg, Pa.
Conv., 1929.

South Central Gas Association

Date of Affiliation—Oct. 15, 1919
Pres.—C. B. McKinney, 505 Scollard Bldg., Dalla,
Steps.—C. H. Seidenglanz, 1501 Commerce
St., Dallas, Fex.
Conv., Oct. 11, 12, 13, 1921, Shreveport, La.

Southern Gas Association

Date of Affiliation—May 20, 1919
Pres.—L. I. Polliti Southern Gas & Electric Corpu.
Lexington Bldg., Baltimore, Md.
Sec.-Tr.—G. H. Smith, City Gas Co., Norfolk, Va.
Conv., 1922

Wisconsin Gas Association

Date of Affiliation—Mar. 25, 1910
Pres.—J. P. Pulliam, Wisconsin Public Service Ca,
Milwaukee, Wis.
Sec.-Tr.—Henry Harman, 182 Wisconsin St., Milwaukee, Wis.
Conv., 1925

OTHER ASSOCIATIONS

Natural Gas Association of America

Pres.—L. B. Denning, Pittsburgh, Pa. Sec.-Tr.—Wm. B. Way, 904-5 Oliver Bldg., Pittsburgh, Pa. Conv., 1922

Society of Gas Lighting

Pres.—Alex. H. Strecker, Newark, N. J. V.-Pres.—W. Cullen Morris Sec.—Geo. G. Ramsdell, 130 E. 13th St., New York, N. Y. Treas.—Wm. J. Welsh. Conv., Dec. 8, 1921, New York, N. Y.

Southwestern Electrical and Gas Association

Pres.—A. Hardgrave, Dallas, Tex. Sec.—H. S. Cooper, Slaughter Bidg., Dallas, Tex. Treas.—J. B. Walker Conv., 1922

AMERICAN GAS ASSOCIATION, Inc.

Current List No. 46-August, 1921

Rate Changes.

O. Tree

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St., San

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Dallas,

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Where information is not secured from company receiving increase, the source of information is noted in brackets. See Cumulative List No. 7, of March, 1921, for explanation of abbreviations. This list includes only increases reported as secured subsequent to June, 1921.

CONNECTICUT

Danbury:

(Decrease)

P. S. C. ordered a reduction effective June 1, 1921. New rate S. Chge 35c per meter per month plus a commodity rate of \$1.80 net per MCF. Industrial rate 1st 50 MCF. \$1.60, over 50 MCF. \$1.30 per MCF.

LOUISIANA

New Orleans:

(Increase)

(Inc

MARYLAND

Co., reports third increase of 22% effective July 1, 1921. New rate from 85c gro., 75c net, to \$1.02 gro., 92c net per MCF. Primary rate, 80c gro., 70c net Secondary rate.

MASSACHUSETTS

New Bedford: Co., reports reduction effective Sept. 1, 1921, from \$1.60 gro., \$1.50 net, to (Decrease) \$1.50 gro., \$1.40 net per MCF. M. M. Chge 50c.

(Decrease)

Co., reports decrease effective July 1, 1921. New rate \$1.45 gro., \$1.35 net per MCF. in Springfield, West Springfield, Agawam, Ludlow, Chicopee and Long Meadow, \$1.55 gro., \$1.45 net in South Hadley, \$1.60 gro., \$1.50 net in East Long Meadow.

NEW JERSEY

Medford: Co., reports increase effective July 1, 1921. New rate \$1.70 per MCF. S. Chge 25c per 3 or 5 lt. meter increasing 1c for each additional light.

NEW YORK

Bay Shore:

(Increase)

Long Island Lighting Co., reports increase effective July 7, 1921. Rate changed from combined block and step, from \$1.75 per M. for 1st 10 MCF. to 75c per M for 1000 MCF, per month to straight line \$2.00 per MCF. M. M. Chge \$1.00 per month. Payment of over \$1.00 in any month to be credited against months in which less than \$1.00 of gas is consumed and if bills for less than contract year aggregate \$12.00 the M. M. Chge during remainder of year to be waived. Applies to Babylon, Huntington, Islip, Oyster Bay, Amityville, Brightwaters and Farmingdale. P. S. C. Bul.

Brooklyn: Brooklyn Union Gas Co., reports voluntary reduction effective Aug. 1, (Decrease) 1921. From \$1.50 to \$1.25 per MCF.

Malone: Co., reports second increase effective Oct. 1, 1920. New rate 22c per CCF., over 10 MCF, 20c per CCF, 15 days.

New York City: Consolidated Gas Co., reports a voluntary reduction effective August 1, (Decrease) 1921. From \$1.50 to \$1.25 per MCF.

Nyach:

(Increase)

Co., reports second increase effective July 1, 1921. New rate 1st 20 MCF. \$2.40, next 20 MCF. \$2.10, next 30 MCF. \$1.75, over 70 MCF. \$1.65 per M. P. S. C. Bul.

PENNSYLVANIA

Harrisburg:

(Increase)

Gas Co., reports increase effective Sept. I, 1917. New rate 1st 10 MCF.
\$1.10, next 30 MCF. \$1.00, next 20 MCF. .90, over 50 MCF. .80 per M.,
disc. 10c per M. 10 days. Dauphin Dist. 5c more per M. M. M. Chge 30c.
Old rate 10c. less per M., discount and M. M. Chge same.

QUESTION BOX

THE questions and answers on accounting subjects in the Question Box have been contributed by the Accounting Section Committee on State Representatives, Mr. Ewald Haase, Chairman, who will be glad to receive inquiries from any of our members on their accounting problems.

Questions and answers under "General Problems" are the result of inquiries received at Association headquarters and answered through the committees of the various Sections or from the Association files.

Answers from our members are solicited on questions which come within their experience and such answers should refer to code number of Questions, A-I, G-I, etc.

-Editor.

ACCOUNTING PROBLEMS

A-15 The reasonableness of the following rule which is incorporated in the application forms of one of our member companies has been questioned by their consumers:

"The consumer is to safely keep the meter and all money deposited therein until removed by the company and indemnify and save harmless the company from any damage or injury to the meter or of any fraud or deception in the operation of the meter or any loss of the money deposited therein."

Will you kindly advise as to whether such a rule is in force in your company or others located in your territory or of any cases to your knowledge where the reasonableness of such a rule has been passed upon by the Courts or Public Service Commission.

ANSWERS

Association Headquarters

The following decisions have a bearing on the reasonableness of the rule requiring consumers to reimburse gas companies for the theft of moneys from prepayment meters:

"Birmingham Railway, Light & Power Company vs. Pratt, 68 Southern, 151. and Birmingham Railway, Light & Power Company vs. McCurdy, Alabama Court of Appeals, 64 Co. 510."

In the first case cited, the Alabama Supreme Court upheld the ruling of the Appellate Court as follows:

"We are aware of no rule of law which would render invalid and unenforceable an undertaking of a consumer of gas, supplied in the way above mentioned, to be responsible for the loss or theft of the money deposited in payment of it, while that money is in the agreed receptacle for it on his own premises. By such an undertaking he merely insures the safety from violence or theft of the money deposited for gas as desired before it goes into the possession or under the control of the party entitled to it and while it is in the agreed place of deposit on the premises served through the meter of which the consumer makes use. The law does not forbid the assumption of such risk by a consumer of gas who contracts for such a method of service. It is not made to appear that the plaintiffs desired or consented to be supplied with gas in any way except through the prepayment meter for the use of which they contracted."

A statement of the circumstances surrounding this case is given in connection with the Appellate Court citation above as follows:

"The occupants of a pool room sued a gas company for damages for breach of contract to furnish gas through a prepayment meter by wrongfully cutting off the gas from the premises and removing the meter. The contract provided that the consumer should provide suitable space for the meter and, should the money deposited therein be lost stolen or removed by any but the agents of the company, he should pay the company the amount so stolen or lost.

A. G. A. MONTHLY

"The gas company's defense was that the meter had been broken open and the money in it taken out and reimbursement refused by the consumer. The plaintiffs replied that the meter was installed in a part of the premises occupied by another person and was not in their custody, and also that the contract was invalid.

"In regard to the second contention, the court expressed itself as not aware of any rule of law rendering invalid a provision in a contract making a consumer responsible for loss or theft from a meter on his premises; and in regard to the first contention, the meter was installed in the space provided with the knowledge and consent of the consumer; and in any event, the fact that the meter was located on the premises of a third person was as well known to the plaintiff as to the gas company and therefore did not stop them from relying on the contract."

The following cases have a bearing on the responsibility of the consumer for the safety of meters, etc., and his liability for damage in connection therewith which we believe will be of interest in connection with the reasonableness of the rule:

Illinois Public Utilities Commission Case No. 7907 PUR 1919 B 688 re Illinois

Northern Utilities Co.

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Company's Property and Protection thereof:

"All meters, piping and other appliances and equipment furnished by and at the expense of the Company, which may at any time be on said premises, shall unless otherwise expressly provided for herein, be and remain the property of the Company, and the customer shall protect such property from loss or damage and no one who is not an agent of the Company shall be permitted to remove such property or tamper therewith, except as provided in the Act to Regulate Public Utilities or under such rules as may be issued by the Public Utilities Commission."

Bradley Beach vs. Monmouth County Water Co., PUR 1917 C 602:

"A consumer may be required to pay the cost of repairing a meter where damage occurs through his fault or neglect."

Rule approved by Indiana Commission for Indianapolis Water Co.:

"In case of damage to a meter by reason of any act or omission of the consumer, the consumer shall pay the Company the cost of its repair on presentation of an itemized bill, and in case of theft or complete disconnection of a meter, the consumer shall pay the full value thereof."

The decisions which we have found unfavorable to your contention are as follows: Re Western United Gas Co. (III.) PUR 1916 C 808.

"It is unreasonable to require a consumer using gas through a prepayment meter to guarantee the safety of the money deposited, or to indemnify the Company against loss not shown to have been occasioned by his negligence or wrongdoing." Commercial Club vs. Terre Haute Water Works Co. (Ind.).

"A rule making the consumer liable for any injury to the meter is unreasonable in so far as it imposes a liability for injury not due to his lack of ordinary care."

In addition replies from various State Representatives indicate rules similar to your own in effect in the following situations:

Portland, Maine and neighboring cities

Newark, New Jersey Brooklyn, New York

Sioux Falls, South Dakota

Boston and other Massachusetts cities

Portsmouth, Virginia

Philadelphia, Pennsylvania

Detroit, Michigan.

Portland, Maine, further advised that the rule regarding reimbursement for moneys stolen from prepayment meters has been passed on favorably by the State Utilities Commission and in several test cases in the local Courts,

Hammond, Ind., reported such a rule in force previously but due to the ruling of the Public Service Commission of that state requiring the discontinuance of prepayment meters the rule has been abrogated.

Portland, Oregon, reported all prepayment meters set as supplemental only and on a rental basis of fifteen cents per month. Only the controlling or head meter is read and one bill rendered for the total consumption. In no cases does the Company remove moneys from the supplemental prepayment meters or recognize any but the head meter.

Peoria, Illinois, reported:

"Our company has never established any fixed rules trying to place the care and liabilities of the meter against the consumers. We tried in a number of instances to insist on the customer using the meter to make good any money stolen, but without any success. We will gradually do away with prepayment meters for this particular reason as it is impossible to make the consumer stand any losses due to stolen money from the meter."

Salt Lake City, Utah, reported:

"This Company does not use prepayment meters,

Another Company in this State quotes from its rules as follows: "In case of loss or damage to the property of the Company from the acts or negligence of the customer, the customer shall pay to the Company the cost of repairing or replacing such property.

"This Company says that it has been their practice where any loss through money being taken from the meter by other than employees of the Company or through the use of slugs or other devices to defeat prepayment for gas used is encountered, to hold the customer responsible.

"Another Company in this State has no rule bearing on the subject and apparently absorb any loss from non-operation of prepayment mechanism or other cause themselves."

GENERAL PROBLEMS ANSWERS

G-39 (See page 317, May, 1921, issue for text of question (J-39) Mr. W. D. Souder, The U. G. I. Contracting Company, Philadelphia, Pa. (See page 317, May, 1921, issue for text of question G-39)

To prevent corrosion of steel holders, first thoroughly scrape with steel scrapers, then wire brush. See that the metal is thoroughly cleaned and dry before applying any paint. If the scale is loosened but not sufficiently to be removed by the above method, resort to sand blasting. This can be done without filling the cups and tank with sand. (But right here it would be advisable to say that a good plan is, every time a holder is painted, to go over the cups with scoops and clean them out. You are sometimes surprised at the amount of refuse, etc., that is taken from them.)

The writer has sand blasted many holders and kept the cups cleaned out without much trouble.

If the holder is pitted under the corrosion, then the scrapers and wire brushes will not thoroughly do the work, but if the corrosion is not sufficient to necessitate the expense of sand blasting, use chemical treatment as follows:

Apply commercial nitric acid, followed by ammonia strength to neutralize, wash with clear water. This should be done carefully so as not to permit the solutions to run down over the sheets. This method carefully applied, would thoroughly cleanse all pits, when dry, apply one coat of red lead containing 10% of zinc chromate, then follow with a finishing coat of either red oxide or black carbon paint. Have the paint applied by painters and the holder should be well protected for at least five years.

What steps are taken by gas companies to facilitate the repair of meters removed in order that they may be returned to service with the least possible delay? Are companies experiencing difficulty in securing their meter repair men and what systematic efforts are being made to train new men for this work?

Will you please give me any information you may have on the use of steam for purging gas apparatus of air, particularly for the purging of gas mains. I understand that for a long while it has been the practice when new equipment is put up, especially if it is large in capacity, to fill the equipment with steam, thus displacing the air, and then allow the gas to go through without any chance of explosion. Can you advise.

I. How long ago this practice was first started?

2. Is it being done now?

Mr. J. H. Taussig, United Gas Improvement Contracting Co., Philadelphia, Pa.

For purging new equipment—when pipes in apparatus are cold it is usually best to use products of combustion where possible, owing to the fact steam will condense in cold equipment. However, we have in the past purged cold apparatus with steam, using a very large quantity, and having vents at the end to insure a thorough purging with steam. This was done when we started up the producer plant at Rochester, N. Y. There we had large flues and 16" dust arrester, brick lined. We used a large quantity of steam and did not let the gas go into the main until the steam was blowing out various places along the line and at the extreme ends.

This system could be used at any time one of our producer plants is shut down, as it is the only means of purging the system. Whether or not they are using it now at Rochester, I do not know, because I am not familiar with the fact as to whether they have had occasion to shut down their producer plant entirely since they started operation, about three and one-half years ago.

(Continued from page 424)

business expansion, salary changes and unusual expenses. The purpose of the budget is two-fold, first it enables the Commercial Agent to compare actual costs with budget estimates so departments exceeding budget may be the subject of investigation and study; second, it furnishes a definite figure for the financial officer to use in planning for the funds needed.

Estimates of revenue, extensions of mains, services and meter installations are also prepared on a monthly basis.

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Men recruited from the ranks of the Collection Department develop into excellent bookkeepers as do young men of high school training in the fundamentals of bookkeeping. Science is making the psychology tests useful in business by indicating an applicant's mental fitness for clerical work and a test of a force of ledger clerks shows up such men as re-

quire special instructions and help to bring them up to the average production.

(Continued from page 410)

gas cost in a year by the simple habit of turning off the gas before, instead of after, removing the utensil. Never use a large burner for a small utensil. And be sure that the flame always burns blue, never partly yellow. The blue flame results from a perfect mixture of air and gas, and this is regulated by the valves on each burner.

To the wise home builder the selection of a gas range is not a matter to be decided offhand. Not only the nourishment and health of the family, but the sanitation of the kitchen depend upon the type of range you choose. The variety of styles and sizes is almost unlimited, and your choice will be largely dependent on the size of your family and the space you have in your kitchen. Get the size that will serve you longest, it will allow as great a variety of menus as possible.

Employment Bureau

SERVICES OFFERED

WANTED—Position as Industrial Power and Fuel Engineer. Technical engineer and salesman of excellent qualifications for industrial power and fuel sales. Now employed \$3000. Address—A. G. A. Key No. 111

WANTED—Position as executive in a local office of a gas or a combination gas and electric company. Have had practical experience in all branches of commercial utility work. Have been successful in dealing with the public and promoting good will of utility companies. Educated in commercial and accounting methods as compiled by the N. C. G. A. and N. E. L. A. Well acquainted in office routine and very exact on details and execution of same. Address A. G. A.

Key No. 114

Key No. 114.

WANTED—A position with a gas appliance company having need for an all around man experienced in development and selling. Can furnish best of references. Address—A. G. A.

Rey No. 116

POSITION WANTED—As General Superintendent or Engineer of good-sized company, by well known technical graduate of 18 years connection with the gas business. Experienced in every branch of the industry and has made good. Has been superintendent of one large company and manager of other smaller ones. Has himself laid mains, made gas, set ranges, purchased and sold appliances, etc., so that he knows the difficulties and the things to avoid. Noted for his ability to handle men. Well read and up-to-date in every particular. Address—A. G. A.

Key No. 117 particular. Key No. 117

WANTED—Position as manager in medium size town or as gas engineer by technical man with 9 years experience in all branches. Both syndicate and private operation. Has shown exceptionally good results. Address A. G. A.

Key No. 118

WANTED-Position as manager or superintendent with gas company in North-Eastern States. Eight years' experience in both coal and water gas, Married. Good references. Address A. G. A.

Key No. 119

WANTED—Position as General Manager of Gas or Gas and Electric Company in city of size or as assistant to chief executive in very large company. Operation, management, finance, rates and capitalization by Public Utility engineer of broad experience. Address A. G. A.

Key No. 120

WANTED—Position as assistant to engineer of small syndicate of gas and electric companies. Have had four years' experience in engineering depart-ment of a holding corporation. Address A. G. A.

Key No. 121

WANTED—Position where nearly twenty years' in-tensive study of carbonization, works operation, by-product recovery, and all details of apparatus and machinery peculiar to the manufacturing end of the business can be utilized to mutual advan-tage. Address A. G. A.

Key No. 122

Mey No. 123

WANTED—Position as Manager of a gas property, by a man who left such a position two months ago to become the Manager of a manufacturing company. Is 34 years of age; technical graduate, and experienced in all branches of the gas business. Reports and data available from past experience; also the best of reference. Address A. G. A. Key No. 123

EXECUTIVE AVAILABLE-An executive who has had some years' experience in construction, operation and management of gas, electric power and traction properties will soon be open for engagement. Is specially competent in management is such properties in all branches including farate, franchise, and valuation proceedings, take matters and public relation. Will show record of successful work for fifteen years back with pract to anyone interested. Address A. G. A.

GAS APPLIANCE SALESMAN-Especially trains in water and house heating; 15 years' experience desires selling position, either road or local, wit aggressive appliance manufacturer or sa cos pany. Will furnish best selling reference, linuing account against commission. Address A. G. A. G. A. Key No. 125

WANTED—Position as salesman or sales manage with reliable gas or electric appliance manufac-turer preferred. Address A. G. A.

WANTED—Position as manager or sales manager of gas, electric or combined property or group of properties. Now employed by company with which applicant has been associated for several years. Excellent reasons for wishing to make change which, together with highest reference will be furnished to owners interested as more than the complete of the comp ing thoroughly competent executive.

Key No. 127

WANTED—Position as Superintendent of small company, in town of about 100,000 population or as Assistant Superintendent of some large halfluccompany. New England or Central States preferred. Married, middle age, at present emplayed and can furnish good reference. Address A. G. A. Kor No. 32 Key No. 128

WANTED—Position as General Superintendest
Superintendent of Manufacture, coal or wa
gas; life experience in same, at present aspetendent of small plant; Ar references. Sal
\$200 per month. Address A. G. A.

Key No. 250

WANTED—Position as Manager of property in city of 20,000-25,000. Thorough knowledge of all departments, gained from twenty years' experience. At present employed, but desirous of change. Ample references furnished as to character and ability. Address A. G. A. Key No. 130

MECHANICAL ENGINEER—28 years old, 4% years experience in drafting, designing, making shop and construction work, including 25% years in gas and chemical business, desires positions as Assistant Superintendent or Plant Engineer. 25 months in Army, Junior member A. S. M. E. Key No. 132

WANTED—Position as Superintendent or Assistance Superintendent in medium sized W. G. Plant in vicinity of New York, by American, 26 years of age. Technical education—S years in Gas Business. At present Superintendent of plant is Western City. Change desired for betterment and desire to return to East. Address A. G. Key No. 133

WANTED—Position by a man of large general experience in gas business who has made a service of sales promotion problems, and would prove valuable as an assistant to a executive in any department. Address A. G. A.

No. 134

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AMERICAN GAS ASSOCIATION. INC.

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